

03-075-US
SEQUENCE LISTING

<110> Saus, Juan
Revert , Fernando
Revert-Ros, Francisco

<120> Novel Goodpasture antigen-binding protein isoforms and protein
misfolded-mediated disorders

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<151> 2003-02-05

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03-075-US

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03-075-US

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03-075-US

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03-075-US

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03-075-US

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03-075-US
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03-075-US

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03-075-US

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Gly Trp Ala Pro Ala Ser Val Leu Arg Ala Val Ala Lys Arg Glu Tyr
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Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg Gly Leu Gly Ala Ser
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Page 12

03-075-US

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03-075-US

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03-075-US

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03-075-US

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03-075-US

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580 585 590

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595 600 605

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03-075-US																	
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03-075-US

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gac Asp	agc Ser 375	tggt Trp	cag Gln	aag Lys	aga Arg	ctg Leu 380	gat Asp	aag Lys	gaa Glu	act Thr	gag Glu 385	aag Lys	aaa Lys	aga Arg	aga Arg	1266	
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cac His	ttt Phe	gga Gly	gga Gly	cca Pro 410	gat Asp	tat Tyr	gaa Glu	gaa Glu	ggc Gly 415	cct Pro	aac Asn	agt Ser	ctg Leu	att Ile 420	aat Asn	1362	
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03-075-US

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Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr Tyr Val Ala Asn Val Asn	
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Pro Gly Gly Trp Ala Pro Ala Ser Val Leu Arg Ala Val Ala Lys Arg	
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Glu Tyr Pro Lys Phe Leu Lys Arg Phe Thr Ser Tyr Val Gln Glu Lys	
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act gca gga aag cct att ttg ttc tag tattaacagg tactagaaga	2225
Thr Ala Gly Lys Pro Ile Leu Phe	
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03-075-US

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Pro Ser Pro Leu Val Leu Leu Pro Arg Ser Ala Arg Cys Gln Ala Arg
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Pro Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg
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Glu Asp Glu Thr Glu Tyr Gly Cys Arg Gly Ser Ile Cys Leu Ser Lys
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Ala Val Ile Thr Pro His Asp Phe Asp Glu Cys Arg Phe Asp Ile Ser
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Gln Gln Trp Ile Asp Ala Ile Glu Gln His Lys Thr Glu Ser Gly Tyr
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Gly Ser Glu Ser Ser Leu Arg Arg His Gly Ser Met Val Ser Leu Val
225 230 235 240

Ser Gly Ala Ser Gly Tyr Ser Ala Thr Ser Thr Ser Ser Phe Lys Lys
245 250 255

Gly His Ser Leu Arg Glu Lys Leu Ala Glu Met Glu Thr Phe Arg Asp
260 265 270

03-075-US

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Ala Asp Ala Val Ser Lys Asp Glu Leu Gln Arg Asp Lys Val Val Glu
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Asp Asp Glu Asp Asp Phe Pro Thr Thr Arg Ser Asp Gly Asp Phe Leu
305 310 315 320

His Ser Thr Asn Gly Asn Lys Glu Lys Leu Phe Pro His Val Thr Pro
325 330 335

Lys Gly Ile Asn Gly Ile Asp Phe Lys Gly Glu Ala Ile Thr Phe Lys
340 345 350

Ala Thr Thr Ala Gly Ile Leu Ala Thr Leu Ser His Cys Ile Glu Leu
355 360 365

Met Val Lys Arg Glu Asp Ser Trp Gln Lys Arg Leu Asp Lys Glu Thr
370 375 380

Glu Lys Lys Arg Arg Thr Glu Glu Ala Tyr Lys Asn Ala Met Thr Glu
385 390 395 400

Leu Lys Lys Lys Ser His Phe Gly Gly Pro Asp Tyr Glu Glu Gly Pro
405 410 415

Asn Ser Leu Ile Asn Glu Glu Glu Phe Phe Asp Ala Val Glu Ala Ala
420 425 430

Leu Asp Arg Gln Asp Lys Ile Glu Glu Gln Ser Gln Ser Glu Lys Val
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Arg Leu His Trp Pro Thr Ser Leu Pro Ser Gly Asp Ala Phe Ser Ser
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Val Gly Thr His Arg Phe Val Gln Lys Val Glu Glu Met Val Gln Asn
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His Met Thr Tyr Ser Leu Gln Asp Val Gly Gly Asp Ala Asn Trp Gln
485 490 495

Leu Val Val Glu Glu Gly Glu Met Lys Val Tyr Arg Arg Glu Val Glu
500 505 510

515

520

525

Gly Val Thr Gly His Glu Val Cys Asn Tyr Phe Trp Asn Val Asp Val
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Leu Ala Asp Asn Ala Ile Ile Ile Tyr Gln Thr His Lys Arg Val Trp
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Pro Ala Ser Gln Arg Asp Val Leu Tyr Leu Ser Val Ile Arg Lys Ile
 580 585 590

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 595 600 605

Ser Val Asp His Asp Ser Ala Pro Leu Asn Asn Arg Cys Val Arg Ala
 610 615 620

Lys Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser Pro Pro Glu
 625 630 635 640

Gly Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr Tyr
 645 650 655

Val Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val Leu Arg
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03-075-US

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tct Ser	ggg Gly	ccg Pro 35	cct Pro	gtg Val	gag Glu	cgc Arg	tgc Cys 40	ggg Gly	gtc Val	ctc Leu	agt Ser	aag Lys 45	tgg Trp	aca Thr	aac Asn	144				
tac Tyr	att Ile 50	cat His	ggg Gly	tgg Trp	cag Gln	gat Asp 55	cgt Arg	tgg Trp	gta Val	gtt Val	ttg Leu 60	aaa Lys	aat Asn	aat Asn	gct Ala	192				
ctg Leu 65	agt Ser	tac Tyr	tac Tyr	aaa Lys	tct Ser 70	gaa Glu	gat Asp	gaa Glu	aca Thr	gag Glu 75	tat Tyr	ggc Gly	tgc Cys	aga Arg	gga Gly 80	240				
tcc Ser	atc Ile	tgt Cys	ctt Leu	agc Ser 85	aag Lys	gct Ala	gtc Val	atc Ile 90	aca Thr	cct Pro	cac His	gat Asp	ttt Phe	gat Asp 95	gaa Glu	288				
tgt Cys	cga Arg	ttt Phe	gat Asp 100	att Ile	agt Ser	gta Val	aat Asn	gat Asp 105	agt Ser	gtt Val	tgg Trp	tat Tyr	ctt Leu 110	cgt Arg	gct Ala	336				
cag Gln	gat Asp	cca Pro 115	gat Asp	cat His	aga Arg	cag Gln	caa Gln 120	tgg Trp	ata Ile	gat Asp	gcc Ala	att Ile 125	gaa Glu	cag Gln	cac His	384				
aag Lys	act Thr 130	gaa Glu	tct Ser	gga Gly	tat Tyr	gga Gly 135	tct Ser	gaa Glu	tcc Ser	agc Ser	ttg Leu 140	cgt Arg	cga Arg	cat His	ggc Gly	432				
tca Ser 145	atg Met	gtg Val	tcc Ser	ctg Leu	gtg Val 150	tct Ser	gga Gly	gca Ala	agt Ser	ggc Gly 155	tac Tyr	tct Ser	gca Ala	aca Thr	tcc Ser 160	480				
acc Thr	tct Ser	tca Ser	ttc Phe	aag Lys 165	aaa Lys	ggc Gly	cac His	agt Ser	tta Leu 170	cgt Arg	gag Glu	aag Lys	ttg Leu	gct Ala 175	gaa Glu	528				
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aag Lys	tac Tyr	ttt Phe 195	gat Asp	gcc Ala	tgt Cys	gct Ala	gat Asp 200	gct Ala	gtc Val	tct Ser	aag Lys	gat Asp 205	gaa Glu	ctt Leu	caa Gln	624				
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Page 25

03-075-US

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aga	ctg	gat	aag	gaa	act	gag	aag	aaa	aga	aga	aca	gag	gaa	gca	tat	912
Arg	Leu	Asp	Lys	Glu	Thr	Glu	Lys	Lys	Arg	Arg	Thr	Glu	Glu	Ala	Tyr	
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Lys	Asn	Ala	Met	Thr	Glu	Leu	Lys	Lys	Lys	Ser	His	Phe	Gly	Gly	Pro	
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Asp	Tyr	Glu	Glu	Gly	Pro	Asn	Ser	Leu	Ile	Asn	Glu	Glu	Glu	Phe	Phe	
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gat	gct	gtt	gaa	gct	gct	ctt	gac	aga	caa	gat	aaa	ata	gaa	gaa	cag	1056
Asp	Ala	Val	Glu	Ala	Ala	Leu	Asp	Arg	Gln	Asp	Lys	Ile	Glu	Glu	Gln	
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tca	cag	agt	gaa	aag	gtg	aga	tta	cat	tgg	cct	aca	tcc	ttg	ccc	tct	1104
Ser	Gln	Ser	Glu	Lys	Val	Arg	Leu	His	Trp	Pro	Thr	Ser	Leu	Pro	Ser	
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gga	gat	gcc	ttt	tct	tct	gtg	ggg	aca	cat	aga	ttt	gtc	caa	aag	ccc	1152
Gly	Asp	Ala	Phe	Ser	Ser	Val	Gly	Thr	His	Arg	Phe	Val	Gln	Lys	Pro	
	370					375					380					
tat	agt	cgc	tct	tcc	tcc	atg	tct	tcc	att	gat	cta	gtc	agt	gcc	tct	1200
Tyr	Ser	Arg	Ser	Ser	Ser	Met	Ser	Ser	Ile	Asp	Leu	Val	Ser	Ala	Ser	
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gat	gat	gtt	cac	aga	ttc	agc	tcc	cag	gtt	gaa	gag	atg	gtg	cag	aac	1248
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cac	atg	act	tac	tca	tta	cag	gat	gta	ggc	gga	gat	gcc	aat	tgg	cag	1296
His	Met	Thr	Tyr	Ser	Leu	Gln	Asp	Val	Gly	Gly	Asp	Ala	Asn	Trp	Gln	
			420					425					430			
ttg	gtt	gta	gaa	gaa	gga	gaa	atg	aag	gta	tac	aga	aga	gaa	gta	gaa	1344
Leu	Val	Val	Glu	Glu	Gly	Glu	Met	Lys	Val	Tyr	Arg	Arg	Glu	Val	Glu	
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gaa	aat	ggg	att	gtt	ctg	gat	cct	tta	aaa	gct	acc	cat	gca	gtt	aaa	1392
Glu	Asn	Gly	Ile	Val	Leu	Asp	Pro	Leu	Lys	Ala	Thr	His	Ala	Val	Lys	
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Arg	Asn	Asp	Trp	Glu	Thr	Thr	Ile	Glu	Asn	Phe	His	Val	Val	Glu	Thr	
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03-075-US

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Ser	Gly	Pro	Pro	Val	Glu	Arg	Cys	Gly	Val	Leu	Ser	Lys	Trp	Thr	Asn
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Leu	Ser	Tyr	Tyr	Lys	Ser	Glu	Asp	Glu	Thr	Glu	Tyr	Gly	Cys	Arg	Gly
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03-075-US

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Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu Arg Ala
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Thr Ser Ser Phe Lys Lys Gly His Ser Leu Arg Glu Lys Leu Ala Glu
165 170 175

Met Glu Thr Phe Arg Asp Ile Leu Cys Arg Gln Val Asp Thr Leu Gln
180 185 190

Lys Tyr Phe Asp Ala Cys Ala Asp Ala Val Ser Lys Asp Glu Leu Gln
195 200 205

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Ser Asp Gly Asp Phe Leu His Ser Thr Asn Gly Asn Lys Glu Lys Leu
225 230 235 240

Phe Pro His Val Thr Pro Lys Gly Ile Asn Gly Ile Asp Phe Lys Gly
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Glu Ala Ile Thr Phe Lys Ala Thr Thr Ala Gly Ile Leu Ala Thr Leu
260 265 270

Ser His Cys Ile Glu Leu Met Val Lys Arg Glu Asp Ser Trp Gln Lys
275 280 285

Arg Leu Asp Lys Glu Thr Glu Lys Lys Arg Arg Thr Glu Glu Ala Tyr
290 295 300

Lys Asn Ala Met Thr Glu Leu Lys Lys Lys Ser His Phe Gly Gly Pro
305 310 315 320

Asp Tyr Glu Glu Gly Pro Asn Ser Leu Ile Asn Glu Glu Glu Phe Phe
325 330 335

03-075-US

Asp Ala Val Glu Ala Ala Leu Asp Arg Gln Asp Lys Ile Glu Glu Gln
340 345 350

Ser Gln Ser Glu Lys Val Arg Leu His Trp Pro Thr Ser Leu Pro Ser
355 360 365

Gly Asp Ala Phe Ser Ser Val Gly Thr His Arg Phe Val Gln Lys Pro
370 375 380

Tyr Ser Arg Ser Ser Ser Met Ser Ser Ile Asp Leu Val Ser Ala Ser
385 390 395 400

Asp Asp Val His Arg Phe Ser Ser Gln Val Glu Glu Met Val Gln Asn
405 410 415

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Pro Ala Ser Gln Arg Asp Val Leu Tyr Leu Ser Val Ile Arg Lys Ile
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Gly Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr Tyr
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03-075-US

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Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp Thr Asn
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Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn Asn Ala
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Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys Arg Gly
65 70 75 80
tcc atc tgt ctt agc aag gct gtc atc aca cct cac gat ttt gat gaa 288
Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe Asp Glu
85 90 95
tgt cga ttt gat att agt gta aat gat agt gtt tgg tat ctt cgt gct 336
Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu Arg Ala
100 105 110
cag gat cca gat cat aga cag caa tgg ata gat gcc att gaa cag cac 384
Gln Asp Pro Asp His Arg Gln Gln Trp Ile Asp Ala Ile Glu Gln His
115 120 125
aag act gaa tct gga tat gga tct gaa tcc agc ttg cgt cga cat ggc 432
Lys Thr Glu Ser Gly Tyr Gly Ser Glu Ser Ser Leu Arg Arg His Gly
130 135 140

03-075-US

tca Ser 145	atg Met	gtg Val	tcc Ser	ctg Leu	gtg Val 150	tct Ser	gga Gly	gca Ala	agt Ser	ggc Gly 155	tac Tyr	tct Ser	gca Ala	aca Thr	tcc Ser 160	480
acc Thr	tct Ser	tca Ser	ttc Phe	aag Lys 165	aaa Lys	ggc Gly	cac His	agt Ser	tta Leu 170	cgt Arg	gag Glu	aag Lys	ttg Leu	gct Ala 175	gaa Glu	528
atg Met	gaa Glu	aca Thr	ttt Phe 180	aga Arg	gac Asp	atc Ile	tta Leu	tgt Cys 185	aga Arg	caa Gln	gtt Val	gac Asp	acg Thr 190	cta Leu	cag Gln	576
aag Lys	tac Tyr	ttt Phe 195	gat Asp	gcc Ala	tgt Cys	gct Ala	gat Asp 200	gct Ala	gtc Val	tct Ser	aag Lys	gat Asp 205	gaa Glu	ctt Leu	caa Gln	624
agg Arg	gat Asp 210	aaa Lys	gtg Val	gta Val	gaa Glu	gat Asp 215	gat Asp	gaa Glu	gat Asp	gac Asp	ttt Phe 220	cct Pro	aca Thr	acg Thr	cgt Arg	672
tct Ser 225	gat Asp	ggg Gly	gac Asp	ttc Phe	ttg Leu 230	cat His	agt Ser	acc Thr	aac Asn	ggc Gly 235	aat Asn	aaa Lys	gaa Glu	aag Lys	tta Leu 240	720
ttt Phe	cca Pro	cat His	gtg Val	aca Thr 245	cca Pro	aaa Lys	gga Gly	att Ile	aat Asn 250	ggg Gly	ata Ile	gac Asp	ttt Phe	aaa Lys 255	ggg Gly	768
gaa Glu	gcg Ala	ata Ile	act Thr 260	ttt Phe	aaa Lys	gca Ala	act Thr	act Thr 265	gct Ala	gga Gly	atc Ile	ctt Leu	gca Ala 270	aca Thr	ctt Leu	816
tct Ser	cat His	tgt Cys 275	att Ile	gaa Glu	cta Leu	atg Met	gtt Val 280	aaa Lys	cgt Arg	gag Glu	gac Asp	agc Ser 285	tgg Trp	cag Gln	aag Lys	864
aga Arg	ctg Leu 290	gat Asp	aag Lys	gaa Glu	act Thr	gag Glu 295	aag Lys	aaa Lys	aga Arg	aga Arg	aca Thr 300	gag Glu	gaa Glu	gca Ala	tat Tyr	912
aaa Lys 305	aat Asn	gca Ala	atg Met	aca Thr	gaa Glu 310	ctt Leu	aag Lys	aaa Lys	aaa Lys	tcc Ser 315	cac His	ttt Phe	gga Gly	gga Gly	cca Pro 320	960
gat Asp	tat Tyr	gaa Glu	gaa Glu	ggc Gly 325	cct Pro	aac Asn	agt Ser	ctg Leu	att Ile 330	aat Asn	gaa Glu	gaa Glu	gag Glu	ttc Phe 335	ttt Phe	1008
gat Asp	gct Ala	gtt Val	gaa Glu 340	gct Ala	gct Ala	ctt Leu	gac Asp	aga Arg 345	caa Gln	gat Asp	aaa Lys	ata Ile	gaa Glu 350	gaa Glu	cag Gln	1056
tca Ser	cag Gln	agt Ser 355	gaa Glu	aag Lys	gtg Val	aga Arg	tta Leu 360	cat His	tgg Trp	cct Pro	aca Thr	tcc Ser 365	ttg Leu	ccc Pro	tct Ser	1104
gga Gly	gat Asp 370	gcc Ala	ttt Phe	tct Ser	tct Ser	gtg Val 375	ggg Gly	aca Thr	cat His	aga Arg	ttt Phe 380	gtc Val	caa Gln	aag Lys	gtt Val	1152
gaa Glu	gag Glu	atg Met	gtg Val	cag Gln	aac Asn	cac His	atg Met	act Thr	tac Tyr	tca Ser	tta Leu	cag Gln	gat Asp	gta Val	ggc Gly	1200

03-075-US

385	390	395	400	
gga gat gcc aat tgg cag ttg gtt gta gaa gaa gga gaa atg aag gta				1248
Gly Asp Ala Asn Trp 405	Gln Leu Val Val	Glu 410	Glu Gly Glu Met Lys Val 415	
tac aga aga gaa gta gaa gaa aat ggg att gtt ctg gat cct tta aaa				1296
Tyr Arg Arg Glu Val 420	Glu Glu Asn 425	Ile Val Leu	Asp Pro Leu Lys 430	
gct acc cat gca gtt aaa ggc gtc aca gga cat gaa gtc tgc aat tat				1344
Ala Thr His 435	Val Lys Gly Val 440	Gly His Glu Val 445	Cys Asn Tyr	
ttc tgg aat gtt gac gtt cgc aat gac tgg gaa aca act ata gaa aac				1392
Phe Trp 450	Val Asp Val Arg 455	Asn Asp Trp Glu	Thr Ile Glu Asn 460	
ttt cat gtg gtg gaa aca tta gct gat aat gca atc atc att tat caa				1440
Phe His Val Val Glu Thr 470	Leu Ala Asp Asn 475	Ala Ile Ile Ile Tyr	Gln 480	
aca cac aag agg gtg tgg cct gct tct cag cga gac gta tta tat ctt				1488
Thr His Lys Arg Val 485	Trp Pro Ala Ser 490	Gln Arg Asp Val Leu Tyr 495		
tct gtc att cga aag ata cca gcc ttg act gaa aat gac cct gaa act				1536
Ser Val Ile Arg 500	Lys Ile Pro Ala Leu Thr 505	Glu Asn Asp Pro Glu Thr 510		
tgg ata gtt tgt aat ttt tct gtg gat cat gac agt gct cct cta aac				1584
Trp Ile Val 515	Cys Asn Phe Ser Val 520	His Asp Ser Ala Pro Leu Asn 525		
aac cga tgt gtc cgt gcc aaa ata aat gtt gct atg att tgt caa acc				1632
Asn Arg Cys Val Arg Ala Lys 535	Ile Asn Val Ala Met 540	Ile Cys Gln Thr		
ttg gta agc cca cca gag gga aac cag gaa att agc agg gac aac att				1680
Leu Val Ser Pro Pro Glu Gly Asn Gln Glu Ile 555	Ser Arg Asp Asn Ile 560			
cta tgc aag att aca tat gta gct aat gtg aac cct gga gga tgg gca				1728
Leu Cys Lys Ile Thr 565	Tyr Val Ala Asn Val 570	Asn Pro Gly Gly Trp Ala 575		
cca gcc tca gtg tta agg gca gtg gca aag cga gag tat cct aaa ttt				1776
Pro Ala Ser Val 580	Leu Arg Ala Val 585	Lys Arg Glu Tyr Pro Lys Phe 590		
cta aaa cgt ttt act tct tac gtc caa gaa aaa act gca gga aag cct				1824
Leu Lys Arg Phe Thr Ser Tyr Val 600	Gln Glu Lys Thr Ala Gly Lys Pro 605			
att ttg ttc tag				1836
Ile Leu Phe 610				

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 <212> PRT
 <213> artificial

03-075-US

<220>

<223> Derived sequence

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Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp Thr Asn
35 40 45

Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn Asn Ala
50 55 60

Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys Arg Gly
65 70 75 80

Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe Asp Glu
85 90 95

Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu Arg Ala
100 105 110

Gln Asp Pro Asp His Arg Gln Gln Trp Ile Asp Ala Ile Glu Gln His
115 120 125

Lys Thr Glu Ser Gly Tyr Gly Ser Glu Ser Ser Leu Arg Arg His Gly
130 135 140

Ser Met Val Ser Leu Val Ser Gly Ala Ser Gly Tyr Ser Ala Thr Ser
145 150 155 160

Thr Ser Ser Phe Lys Lys Gly His Ser Leu Arg Glu Lys Leu Ala Glu
165 170 175

Met Glu Thr Phe Arg Asp Ile Leu Cys Arg Gln Val Asp Thr Leu Gln
180 185 190

Lys Tyr Phe Asp Ala Cys Ala Asp Ala Val Ser Lys Asp Glu Leu Gln
195 200 205

Arg Asp Lys Val Val Glu Asp Asp Glu Asp Asp Phe Pro Thr Thr Arg
210 215 220

Ser Asp Gly Asp Phe Leu His Ser Thr Asn Gly Asn Lys Glu Lys Leu
Page 33

03-075-US															
225				230				235				240			
Phe	Pro	His	Val	Thr 245	Pro	Lys	Gly	Ile	Asn 250	Gly	Ile	Asp	Phe	Lys 255	Gly
Glu	Ala	Ile	Thr 260	Phe	Lys	Ala	Thr	Thr 265	Ala	Gly	Ile	Leu	Ala 270	Thr	Leu
Ser	His	Cys 275	Ile	Glu	Leu	Met	Val 280	Lys	Arg	Glu	Asp	Ser 285	Trp	Gln	Lys
Arg	Leu 290	Asp	Lys	Glu	Thr	Glu 295	Lys	Lys	Arg	Arg	Thr 300	Glu	Glu	Ala	Tyr
Lys 305	Asn	Ala	Met	Thr	Glu 310	Leu	Lys	Lys	Lys	Ser 315	His	Phe	Gly	Gly	Pro 320
Asp	Tyr	Glu	Glu	Gly 325	Pro	Asn	Ser	Leu	Ile 330	Asn	Glu	Glu	Glu	Phe 335	Phe
Asp	Ala	Val	Glu 340	Ala	Ala	Leu	Asp	Arg 345	Gln	Asp	Lys	Ile	Glu 350	Glu	Gln
Ser	Gln	Ser 355	Glu	Lys	Val	Arg	Leu 360	His	Trp	Pro	Thr	Ser 365	Leu	Pro	Ser
Gly	Asp 370	Ala	Phe	Ser	Ser	Val 375	Gly	Thr	His	Arg	Phe 380	Val	Gln	Lys	Val
Glu 385	Glu	Met	Val	Gln	Asn 390	His	Met	Thr	Tyr	Ser 395	Leu	Gln	Asp	Val	Gly 400
Gly	Asp	Ala	Asn	Trp 405	Gln	Leu	Val	Val	Glu 410	Glu	Gly	Glu	Met	Lys 415	Val
Tyr	Arg	Arg	Glu 420	Val	Glu	Glu	Asn	Gly 425	Ile	Val	Leu	Asp	Pro 430	Leu	Lys
Ala	Thr	His 435	Ala	Val	Lys	Gly	Val 440	Thr	Gly	His	Glu	Val 445	Cys	Asn	Tyr
Phe	Trp 450	Asn	Val	Asp	Val	Arg 455	Asn	Asp	Trp	Glu	Thr 460	Thr	Ile	Glu	Asn
Phe 465	His	Val	Val	Glu	Thr 470	Leu	Ala	Asp	Asn	Ala 475	Ile	Ile	Ile	Tyr	Gln 480

03-075-US

Thr His Lys Arg Val Trp Pro Ala Ser Gln Arg Asp Val Leu Tyr Leu
485 490 495

Ser Val Ile Arg Lys Ile Pro Ala Leu Thr Glu Asn Asp Pro Glu Thr
500 505 510

Trp Ile Val Cys Asn Phe Ser Val Asp His Asp Ser Ala Pro Leu Asn
515 520 525

Asn Arg Cys Val Arg Ala Lys Ile Asn Val Ala Met Ile Cys Gln Thr
530 535 540

Leu Val Ser Pro Pro Glu Gly Asn Gln Glu Ile Ser Arg Asp Asn Ile
545 550 555 560

Leu Cys Lys Ile Thr Tyr Val Ala Asn Val Asn Pro Gly Gly Trp Ala
565 570 575

Pro Ala Ser Val Leu Arg Ala Val Ala Lys Arg Glu Tyr Pro Lys Phe
580 585 590

Leu Lys Arg Phe Thr Ser Tyr Val Gln Glu Lys Thr Ala Gly Lys Pro
595 600 605

Ile Leu Phe
610

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<211> 1968
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<213> artificial

<220>
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<221> CDS
<222> (1)..(1968)
<223>

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gct gag gga gcg ggg gcc ggt ctc ctg ctc ggt tgt cga gcc tcc atg 96
Ala Glu Gly Ala Gly Ala Gly Leu Leu Gly Cys Arg Ala Ser Met
20 25 30

tcg gat aat cag agc tgg aac tcg tcg ggc tcg gag gag gat cca gag 144
Ser Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro Glu
35 40 45

acg gag tct ggg ccg cct gtg gag cgc tgc ggg gtc ctc agt aag tgg 192
Page 35

03-075-US

Thr	Glu	Ser	Gly	Pro	Pro	Val	Glu	Arg	Cys	Gly	Val	Leu	Ser	Lys	Trp	
50						55					60					
aca	aac	tac	att	cat	ggg	tgg	cag	gat	cgt	tgg	gta	ggt	ttg	aaa	aat	240
Thr	Asn	Tyr	Ile	His	Gly	Trp	Gln	Asp	Arg	Trp	Val	Val	Leu	Lys	Asn	
65					70					75					80	
aat	gct	ctg	agt	tac	tac	aaa	tct	gaa	gat	gaa	aca	gag	tat	ggc	tgc	288
Asn	Ala	Leu	Ser	Tyr	Tyr	Lys	Ser	Glu	Asp	Glu	Thr	Glu	Tyr	Gly	Cys	
				85					90					95		
aga	gga	tcc	atc	tgt	ctt	agc	aag	gct	gtc	atc	aca	cct	cac	gat	ttt	336
Arg	Gly	Ser	Ile	Cys	Leu	Ser	Lys	Ala	Val	Ile	Thr	Pro	His	Asp	Phe	
			100					105					110			
gat	gaa	tgt	cga	ttt	gat	att	agt	gta	aat	gat	agt	ggt	ttg	tat	ctt	384
Asp	Glu	Cys	Arg	Phe	Asp	Ile	Ser	Val	Asn	Asp	Ser	Val	Trp	Tyr	Leu	
		115					120					125				
cgt	gct	cag	gat	cca	gat	cat	aga	cag	caa	tgg	ata	gat	gcc	att	gaa	432
Arg	Ala	Gln	Asp	Pro	Asp	His	Arg	Gln	Gln	Trp	Ile	Asp	Ala	Ile	Glu	
	130					135					140					
cag	cac	aag	act	gaa	tct	gga	tat	gga	tct	gaa	tcc	agc	ttg	cgt	cga	480
Gln	His	Lys	Thr	Glu	Ser	Gly	Tyr	Gly	Ser	Glu	Ser	Ser	Leu	Arg	Arg	
145					150					155					160	
cat	ggc	tca	atg	gtg	tcc	ctg	gtg	tct	gga	gca	agt	ggc	tac	tct	gca	528
His	Gly	Ser	Met	Val	Ser	Leu	Val	Ser	Gly	Ala	Ser	Gly	Tyr	Ser	Ala	
				165					170					175		
aca	tcc	acc	tct	tca	ttc	aag	aaa	ggc	cac	agt	tta	cgt	gag	aag	ttg	576
Thr	Ser	Thr	Ser	Ser	Phe	Lys	Lys	Gly	His	Ser	Leu	Arg	Glu	Lys	Leu	
			180					185					190			
gct	gaa	atg	gaa	aca	ttt	aga	gac	atc	tta	tgt	aga	caa	ggt	gac	acg	624
Ala	Glu	Met	Glu	Thr	Phe	Arg	Asp	Ile	Leu	Cys	Arg	Gln	Val	Asp	Thr	
		195					200					205				
cta	cag	aag	tac	ttt	gat	gcc	tgt	gct	gat	gct	gtc	tct	aag	gat	gaa	672
Leu	Gln	Lys	Tyr	Phe	Asp	Ala	Cys	Ala	Asp	Ala	Val	Ser	Lys	Asp	Glu	
	210					215					220					
ctt	caa	agg	gat	aaa	gtg	gta	gaa	gat	gat	gaa	gat	gac	ttt	cct	aca	720
Leu	Gln	Arg	Asp	Lys	Val	Val	Glu	Asp	Asp	Glu	Asp	Asp	Phe	Pro	Thr	
225					230					235					240	
acg	cgt	tct	gat	ggt	gac	ttc	ttg	cat	agt	acc	aac	ggc	aat	aaa	gaa	768
Thr	Arg	Ser	Asp	Gly	Asp	Phe	Leu	His	Ser	Thr	Asn	Gly	Asn	Lys	Glu	
				245					250					255		
aag	tta	ttt	cca	cat	gtg	aca	cca	aaa	gga	att	aat	ggt	ata	gac	ttt	816
Lys	Leu	Phe	Pro	His	Val	Thr	Pro	Lys	Gly	Ile	Asn	Gly	Ile	Asp	Phe	
			260					265					270			
aaa	ggg	gaa	gcg	ata	act	ttt	aaa	gca	act	act	gct	gga	atc	ctt	gca	864
Lys	Gly	Glu	Ala	Ile	Thr	Phe	Lys	Ala	Thr	Thr	Ala	Gly	Ile	Leu	Ala	
		275					280					285				
aca	ctt	tct	cat	tgt	att	gaa	cta	atg	gtt	aaa	cgt	gag	gac	agc	tgg	912
Thr	Leu	Ser	His	Cys	Ile	Glu	Leu	Met	Val	Lys	Arg	Glu	Asp	Ser	Trp	
	290					295					300					

03-075-US

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gca Ala	tat Tyr	aaa Lys	aat Asn 325	gca Ala 325	atg Met	aca Thr	gaa Glu	ctt Leu	aag Lys 330	aaa Lys	aaa Lys	tcc Ser	cac His	ttt Phe 335	gga Gly	1008
gga Gly	cca Pro	gat Asp	tat Tyr 340	gaa Glu	gaa Glu	ggc Gly	cct Pro	aac Asn 345	agt Ser	ctg Leu	att Ile	aat Asn 350	gaa Glu 350	gaa Glu	gag Glu	1056
ttc Phe	ttt Phe	gat Asp 355	gct Ala	gtt Val	gaa Glu	gct Ala 360	gct Ala 360	ctt Leu	gac Asp	aga Arg	caa Gln	gat Asp 365	aaa Lys	ata Ile	gaa Glu	1104
gaa Glu 370	cag Gln 370	tca Ser	cag Gln	agt Ser	gaa Glu	aag Lys 375	gtg Val	aga Arg	tta Leu	cat His	tgg Trp 380	cct Pro	aca Thr	tcc Ser	ttg Leu	1152
ccc Pro 385	tct Ser	gga Gly	gat Asp	gcc Ala	ttt Phe 390	tct Ser	tct Ser	gtg Val	ggg Gly	aca Thr 395	cat His	aga Arg	ttt Phe	gtc Val	caa Gln 400	1200
aag Lys	ccc Pro	tat Tyr	agt Ser	cgc Arg 405	tct Ser	tcc Ser	tcc Ser	atg Met	tct Ser 410	tcc Ser	att Ile	gat Asp	cta Leu	gtc Val 415	agt Ser	1248
gcc Ala	tct Ser	gat Asp	gat Asp 420	gtt Val	cac His	aga Arg	ttc Phe	agc Ser 425	tcc Ser	cag Gln	gtt Val	gaa Glu	gag Glu 430	atg Met	gtg Val	1296
cag Gln	aac Asn 435	cac His 435	atg Met	act Thr	tac Tyr	tca Ser	tta Leu 440	cag Gln	gat Asp	gta Val	ggc Gly	gga Gly 445	gat Asp	gcc Ala	aat Asn	1344
tgg Trp 450	cag Gln 450	ttg Leu	gtt Val	gta Val	gaa Glu	gaa Glu 455	gga Gly	gaa Glu	atg Met	aag Lys	gta Val 460	tac Tyr	aga Arg	aga Arg	gaa Glu	1392
gta Val 465	gaa Glu	gaa Glu	aat Asn	ggg Gly	att Ile 470	gtt Val	ctg Leu	gat Asp	cct Pro	tta Leu 475	aaa Lys	gct Ala	acc Thr	cat His	gca Ala 480	1440
gtt Val	aaa Lys	ggc Gly	gtc Val	aca Thr 485	gga Gly	cat His	gaa Glu	gtc Val	tgc Cys 490	aat Asn	tat Tyr	ttc Phe	tgg Trp	aat Asn 495	gtt Val	1488
gac Asp	gtt Val	cgc Arg	aat Asn 500	gac Asp	tgg Trp	gaa Glu	aca Thr	act Thr 505	ata Ile	gaa Glu	aac Asn	ttt Phe 510	cat His	gtg Val	gtg Val	1536
gaa Glu	aca Thr	tta Leu 515	gct Ala	gat Asp	aat Asn	gca Ala	atc Ile 520	atc Ile	att Ile	tat Tyr	caa Gln	aca Thr 525	cac His	aag Lys	agg Arg	1584
gtg Val	tgg Trp 530	cct Pro	gct Ala	tct Ser	cag Gln	cga Arg 535	gac Asp	gta Val	tta Leu	tat Tyr	ctt Leu 540	tct Ser	gtc Val	att Ile	cga Arg	1632
aag Lys 545	ata Ile	cca Pro	gcc Ala	ttg Leu	act Thr 550	gaa Glu	aat Asn	gac Asp	cct Pro	gaa Glu 555	act Thr	tgg Trp	ata Ile	gtt Val	tgt Cys 560	1680

03-075-US

aat ttt tct gtg gat cat gac agt gct cct cta aac aac cga tgt gtc	1728
Asn Phe Ser Val Asp His Asp Ser Ala Pro Leu Asn Asn Arg Cys Val	
565 570 575	
cgt gcc aaa ata aat gtt gct atg att tgt caa acc ttg gta agc cca	1776
Arg Ala Lys Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser Pro	
580 585 590	
cca gag gga aac cag gaa att agc agg gac aac att cta tgc aag att	1824
Pro Glu Gly Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile	
595 600 605	
aca tat gta gct aat gtg aac cct gga gga tgg gca cca gcc tca gtg	1872
Thr Tyr Val Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val	
610 615 620	
tta agg gca gtg gca aag cga gag tat cct aaa ttt cta aaa cgt ttt	1920
Leu Arg Ala Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe	
625 630 635 640	
act tct tac gtc caa gaa aaa act gca gga aag cct att ttg ttc tag	1968
Thr Ser Tyr Val Gln Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe	
645 650 655	

<210> 14
 <211> 655
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 14

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35 40 45	
Thr Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp	
50 55 60	
Thr Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn	
65 70 75 80	
Asn Ala Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys	
85 90 95	
Arg Gly Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe	
100 105 110	

03-075-US

Asp Glu Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu
115 120 125

Arg Ala Gln Asp Pro Asp His Arg Gln Gln Trp Ile Asp Ala Ile Glu
130 135 140

Gln His Lys Thr Glu Ser Gly Tyr Gly Ser Glu Ser Ser Leu Arg Arg
145 150 155 160

His Gly Ser Met Val Ser Leu Val Ser Gly Ala Ser Gly Tyr Ser Ala
165 170 175

Thr Ser Thr Ser Ser Phe Lys Lys Gly His Ser Leu Arg Glu Lys Leu
180 185 190

Ala Glu Met Glu Thr Phe Arg Asp Ile Leu Cys Arg Gln Val Asp Thr
195 200 205

Leu Gln Lys Tyr Phe Asp Ala Cys Ala Asp Ala Val Ser Lys Asp Glu
210 215 220

Leu Gln Arg Asp Lys Val Val Glu Asp Asp Glu Asp Asp Phe Pro Thr
225 230 235 240

Thr Arg Ser Asp Gly Asp Phe Leu His Ser Thr Asn Gly Asn Lys Glu
245 250 255

Lys Leu Phe Pro His Val Thr Pro Lys Gly Ile Asn Gly Ile Asp Phe
260 265 270

Lys Gly Glu Ala Ile Thr Phe Lys Ala Thr Thr Ala Gly Ile Leu Ala
275 280 285

Thr Leu Ser His Cys Ile Glu Leu Met Val Lys Arg Glu Asp Ser Trp
290 295 300

Gln Lys Arg Leu Asp Lys Glu Thr Glu Lys Lys Arg Arg Thr Glu Glu
305 310 315 320

Ala Tyr Lys Asn Ala Met Thr Glu Leu Lys Lys Lys Ser His Phe Gly
325 330 335

Gly Pro Asp Tyr Glu Glu Gly Pro Asn Ser Leu Ile Asn Glu Glu Glu
340 345 350

Phe Phe Asp Ala Val Glu Ala Ala Leu Asp Arg Gln Asp Lys Ile Glu
355 360 365

03-075-US

Glu Gln Ser Gln Ser Glu Lys Val Arg Leu His Trp Pro Thr Ser Leu
370 375 380

Pro Ser Gly Asp Ala Phe Ser Ser Val Gly Thr His Arg Phe Val Gln
385 390 395 400

Lys Pro Tyr Ser Arg Ser Ser Ser Met Ser Ser Ile Asp Leu Val Ser
405 410 415

Ala Ser Asp Asp Val His Arg Phe Ser Ser Gln Val Glu Glu Met Val
420 425 430

Gln Asn His Met Thr Tyr Ser Leu Gln Asp Val Gly Gly Asp Ala Asn
435 440 445

Trp Gln Leu Val Val Glu Glu Gly Glu Met Lys Val Tyr Arg Arg Glu
450 455 460

Val Glu Glu Asn Gly Ile Val Leu Asp Pro Leu Lys Ala Thr His Ala
465 470 475 480

Val Lys Gly Val Thr Gly His Glu Val Cys Asn Tyr Phe Trp Asn Val
485 490 495

Asp Val Arg Asn Asp Trp Glu Thr Thr Ile Glu Asn Phe His Val Val
500 505 510

Glu Thr Leu Ala Asp Asn Ala Ile Ile Ile Tyr Gln Thr His Lys Arg
515 520 525

Val Trp Pro Ala Ser Gln Arg Asp Val Leu Tyr Leu Ser Val Ile Arg
530 535 540

Lys Ile Pro Ala Leu Thr Glu Asn Asp Pro Glu Thr Trp Ile Val Cys
545 550 555 560

Asn Phe Ser Val Asp His Asp Ser Ala Pro Leu Asn Asn Arg Cys Val
565 570 575

Arg Ala Lys Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser Pro
580 585 590

Pro Glu Gly Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile
595 600 605

Thr Tyr Val Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val
Page 40

610

615

Leu Arg Ala Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe
625 630 635 640

Thr Ser Tyr Val Gln Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe
645 650 655

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gct gag gga gcg ggg gcc ggt ctc ctg ctc ggt tgt cga gcc tcc atg	96
Ala Glu Gly Ala Gly Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser Met	
20 25 30	
tcg gat aat cag agc tgg aac tcg tcg ggc tcg gag gag gat cca gag	144
Ser Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro Glu	
35 40 45	
acg gag tct ggg ccg cct gtg gag cgc tgc ggg gtc ctc agt aag tgg	192
Thr Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp	
50 55 60	
aca aac tac att cat ggg tgg cag gat cgt tgg gta gtt ttg aaa aat	240
Thr Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn	
65 70 75 80	
aat gct ctg agt tac tac aaa tct gaa gat gaa aca gag tat ggc tgc	288
Asn Ala Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys	
85 90 95	
aga gga tcc atc tgt ctt agc aag gct gtc atc aca cct cac gat ttt	336
Arg Gly Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe	
100 105 110	
gat gaa tgt cga ttt gat att agt gta aat gat agt gtt tgg tat ctt	384
Asp Glu Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu	
115 120 125	
cgt gct cag gat cca gat cat aga cag caa tgg ata gat gcc att gaa	432
Arg Ala Gln Asp Pro Asp His Arg Gln Gln Trp Ile Asp Ala Ile Glu	
130 135 140	
cag cac aag act gaa tct gga tat gga tct gaa tcc agc ttg cgt cga	480
Gln His Lys Thr Glu Ser Gly Tyr Gly Ser Glu Ser Ser Leu Arg Arg	

145	03-075-US										160	
	155											
cat ggc tca atg gtg tcc ctg gtg tct gga gca agt ggc tac tct gca	528											
His Gly Ser Met Val Ser Leu Val Ser Gly Ala Ser Gly Tyr Ser Ala												
	165 170 175											
aca tcc acc tct tca ttc aag aaa ggc cac agt tta cgt gag aag ttg	576											
Thr Ser Thr Ser Ser Phe Lys Lys Gly His Ser Leu Arg Glu Lys Leu												
	180 185 190											
gct gaa atg gaa aca ttt aga gac atc tta tgt aga caa gtt gac acg	624											
Ala Glu Met Glu Thr Phe Arg Asp Ile Leu Cys Arg Gln Val Asp Thr												
	195 200 205											
cta cag aag tac ttt gat gcc tgt gct gat gct gtc tct aag gat gaa	672											
Leu Gln Lys Tyr Phe Asp Ala Cys Ala Asp Ala Val Ser Lys Asp Glu												
	210 215 220											
ctt caa agg gat aaa gtg gta gaa gat gat gaa gat gac ttt cct aca	720											
Leu Gln Arg Asp Lys Val Val Glu Asp Asp Glu Asp Asp Phe Pro Thr												
	225 230 235 240											
acg cgt tct gat ggt gac ttc ttg cat agt acc aac ggc aat aaa gaa	768											
Thr Arg Ser Asp Gly Asp Phe Leu His Ser Thr Asn Gly Asn Lys Glu												
	245 250 255											
aag tta ttt cca cat gtg aca cca aaa gga att aat ggt ata gac ttt	816											
Lys Leu Phe Pro His Val Thr Pro Lys Gly Ile Asn Gly Ile Asp Phe												
	260 265 270											
aaa ggg gaa gcg ata act ttt aaa gca act act gct gga atc ctt gca	864											
Lys Gly Glu Ala Ile Thr Phe Lys Ala Thr Thr Ala Gly Ile Leu Ala												
	275 280 285											
aca ctt tct cat tgt att gaa cta atg gtt aaa cgt gag gac agc tgg	912											
Thr Leu Ser His Cys Ile Glu Leu Met Val Lys Arg Glu Asp Ser Trp												
	290 295 300											
cag aag aga ctg gat aag gaa act gag aag aaa aga aga aca gag gaa	960											
Gln Lys Arg Leu Asp Lys Glu Thr Glu Lys Lys Arg Arg Thr Glu Glu												
	305 310 315 320											
gca tat aaa aat gca atg aca gaa ctt aag aaa aaa tcc cac ttt gga	1008											
Ala Tyr Lys Asn Ala Met Thr Glu Leu Lys Lys Lys Ser His Phe Gly												
	325 330 335											
gga cca gat tat gaa gaa ggc cct aac agt ctg att aat gaa gaa gag	1056											
Gly Pro Asp Tyr Glu Glu Gly Pro Asn Ser Leu Ile Asn Glu Glu Glu												
	340 345 350											
ttc ttt gat gct gtt gaa gct gct ctt gac aga caa gat aaa ata gaa	1104											
Phe Phe Asp Ala Val Glu Ala Ala Leu Asp Arg Gln Asp Lys Ile Glu												
	355 360 365											
gaa cag tca cag agt gaa aag gtg aga tta cat tgg cct aca tcc ttg	1152											
Glu Gln Ser Gln Ser Glu Lys Val Arg Leu His Trp Pro Thr Ser Leu												
	370 375 380											
ccc tct gga gat gcc ttt tct tct gtg ggg aca cat aga ttt gtc caa	1200											
Pro Ser Gly Asp Ala Phe Ser Ser Val Gly Thr His Arg Phe Val Gln												
	385 390 395 400											
aag gtt gaa gag atg gtg cag aac cac atg act tac tca tta cag gat	1248											

03-075-US

Lys	Val	Glu	Glu	Met	Val	Gln	Asn	His	Met	Thr	Tyr	Ser	Leu	Gln	Asp	
				405					410					415		
gta	ggc	gga	gat	gcc	aat	tgg	cag	ttg	gtt	gta	gaa	gaa	gga	gaa	atg	1296
Val	Gly	Gly	Asp	Ala	Asn	Trp	Gln	Leu	Val	Val	Glu	Glu	Gly	Glu	Met	
			420					425					430			
aag	gta	tac	aga	aga	gaa	gta	gaa	gaa	aat	ggg	att	gtt	ctg	gat	cct	1344
Lys	Val	Tyr	Arg	Arg	Glu	Val	Glu	Glu	Asn	Gly	Ile	Val	Leu	Asp	Pro	
		435					440					445				
tta	aaa	gct	acc	cat	gca	gtt	aaa	ggc	gtc	aca	gga	cat	gaa	gtc	tgc	1392
Leu	Lys	Ala	Thr	His	Ala	Val	Lys	Gly	Val	Thr	Gly	His	Glu	Val	Cys	
	450					455					460					
aat	tat	ttc	tgg	aat	gtt	gac	gtt	cgc	aat	gac	tgg	gaa	aca	act	ata	1440
Asn	Tyr	Phe	Trp	Asn	Val	Asp	Val	Arg	Asn	Asp	Trp	Glu	Thr	Thr	Ile	
465					470					475					480	
gaa	aac	ttt	cat	gtg	gtg	gaa	aca	tta	gct	gat	aat	gca	atc	atc	att	1488
Glu	Asn	Phe	His	Val	Val	Glu	Thr	Leu	Ala	Asp	Asn	Ala	Ile	Ile	Ile	
				485					490					495		
tat	caa	aca	cac	aag	agg	gtg	tgg	cct	gct	tct	cag	cga	gac	gta	tta	1536
Tyr	Gln	Thr	His	Lys	Arg	Val	Trp	Pro	Ala	Ser	Gln	Arg	Asp	Val	Leu	
			500					505					510			
tat	ctt	tct	gtc	att	cga	aag	ata	cca	gcc	ttg	act	gaa	aat	gac	cct	1584
Tyr	Leu	Ser	Val	Ile	Arg	Lys	Ile	Pro	Ala	Leu	Thr	Glu	Asn	Asp	Pro	
		515					520					525				
gaa	act	tgg	ata	gtt	tgt	aat	ttt	tct	gtg	gat	cat	gac	agt	gct	cct	1632
Glu	Thr	Trp	Ile	Val	Cys	Asn	Phe	Ser	Val	Asp	His	Asp	Ser	Ala	Pro	
	530					535					540					
cta	aac	aac	cga	tgt	gtc	cgt	gcc	aaa	ata	aat	gtt	gct	atg	att	tgt	1680
Leu	Asn	Asn	Arg	Cys	Val	Arg	Ala	Lys	Ile	Asn	Val	Ala	Met	Ile	Cys	
545					550					555					560	
caa	acc	ttg	gta	agc	cca	cca	gag	gga	aac	cag	gaa	att	agc	agg	gac	1728
Gln	Thr	Leu	Val	Ser	Pro	Pro	Glu	Gly	Asn	Gln	Glu	Ile	Ser	Arg	Asp	
				565				570						575		
aac	att	cta	tgc	aag	att	aca	tat	gta	gct	aat	gtg	aac	cct	gga	gga	1776
Asn	Ile	Leu	Cys	Lys	Ile	Thr	Tyr	Val	Ala	Asn	Val	Asn	Pro	Gly	Gly	
			580					585					590			
tgg	gca	cca	gcc	tca	gtg	tta	agg	gca	gtg	gca	aag	cga	gag	tat	cct	1824
Trp	Ala	Pro	Ala	Ser	Val	Leu	Arg	Ala	Val	Ala	Lys	Arg	Glu	Tyr	Pro	
		595					600					605				
aaa	ttt	cta	aaa	cgt	ttt	act	tct	tac	gtc	caa	gaa	aaa	act	gca	gga	1872
Lys	Phe	Leu	Lys	Arg	Phe	Thr	Ser	Tyr	Val	Gln	Glu	Lys	Thr	Ala	Gly	
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aag	cct	att	ttg	ttc	tag											1890
Lys	Pro	Ile	Leu	Phe												
625																
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<223> Derived sequence

<400> 16

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Ser Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro Glu
 35 40 45

Thr Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp
 50 55 60

Thr Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn
 65 70 75 80

Asn Ala Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys
 85 90 95

Arg Gly Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe
 100 105 110

Asp Glu Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu
 115 120 125

Arg Ala Gln Asp Pro Asp His Arg Gln Gln Trp Ile Asp Ala Ile Glu
 130 135 140

Gln His Lys Thr Glu Ser Gly Tyr Gly Ser Glu Ser Ser Leu Arg Arg
 145 150 155 160

His Gly Ser Met Val Ser Leu Val Ser Gly Ala Ser Gly Tyr Ser Ala
 165 170 175

Thr Ser Thr Ser Ser Phe Lys Lys Gly His Ser Leu Arg Glu Lys Leu
 180 185 190

Ala Glu Met Glu Thr Phe Arg Asp Ile Leu Cys Arg Gln Val Asp Thr
 195 200 205

Leu Gln Lys Tyr Phe Asp Ala Cys Ala Asp Ala Val Ser Lys Asp Glu
 210 215 220

03-075-US

Leu Gln Arg Asp Lys Val Val Glu Asp Asp Glu Asp Asp Phe Pro Thr
 225 230 235 240

Thr Arg Ser Asp Gly Asp Phe Leu His Ser Thr Asn Gly Asn Lys Glu
 245 250 255

Lys Leu Phe Pro His Val Thr Pro Lys Gly Ile Asn Gly Ile Asp Phe
 260 265 270

Lys Gly Glu Ala Ile Thr Phe Lys Ala Thr Thr Ala Gly Ile Leu Ala
 275 280 285

Thr Leu Ser His Cys Ile Glu Leu Met Val Lys Arg Glu Asp Ser Trp
 290 295 300

Gln Lys Arg Leu Asp Lys Glu Thr Glu Lys Lys Arg Arg Thr Glu Glu
 305 310 315 320

Ala Tyr Lys Asn Ala Met Thr Glu Leu Lys Lys Lys Ser His Phe Gly
 325 330 335

Gly Pro Asp Tyr Glu Glu Gly Pro Asn Ser Leu Ile Asn Glu Glu Glu
 340 345 350

Phe Phe Asp Ala Val Glu Ala Ala Leu Asp Arg Gln Asp Lys Ile Glu
 355 360 365

Glu Gln Ser Gln Ser Glu Lys Val Arg Leu His Trp Pro Thr Ser Leu
 370 375 380

Pro Ser Gly Asp Ala Phe Ser Ser Val Gly Thr His Arg Phe Val Gln
 385 390 395 400

Lys Val Glu Glu Met Val Gln Asn His Met Thr Tyr Ser Leu Gln Asp
 405 410 415

Val Gly Gly Asp Ala Asn Trp Gln Leu Val Val Glu Glu Gly Glu Met
 420 425 430

Lys Val Tyr Arg Arg Glu Val Glu Glu Asn Gly Ile Val Leu Asp Pro
 435 440 445

Leu Lys Ala Thr His Ala Val Lys Gly Val Thr Gly His Glu Val Cys
 450 455 460

Asn Tyr Phe Trp Asn Val Asp Val Arg Asn Asp Trp Glu Thr Thr Ile
 465 470 475 480

03-075-US

Glu Asn Phe His Val Val Glu Thr Leu Ala Asp Asn Ala Ile Ile Ile
485 490 495

Tyr Gln Thr His Lys Arg Val Trp Pro Ala Ser Gln Arg Asp Val Leu
500 505 510

Tyr Leu Ser Val Ile Arg Lys Ile Pro Ala Leu Thr Glu Asn Asp Pro
515 520 525

Glu Thr Trp Ile Val Cys Asn Phe Ser Val Asp His Asp Ser Ala Pro
530 535 540

Leu Asn Asn Arg Cys Val Arg Ala Lys Ile Asn Val Ala Met Ile Cys
545 550 555 560

Gln Thr Leu Val Ser Pro Pro Glu Gly Asn Gln Glu Ile Ser Arg Asp
565 570 575

Asn Ile Leu Cys Lys Ile Thr Tyr Val Ala Asn Val Asn Pro Gly Gly
580 585 590

Trp Ala Pro Ala Ser Val Leu Arg Ala Val Ala Lys Arg Glu Tyr Pro
595 600 605

Lys Phe Leu Lys Arg Phe Thr Ser Tyr Val Gln Glu Lys Thr Ala Gly
610 615 620

Lys Pro Ile Leu Phe
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Arg Arg Gly Gly Arg Thr Ser Ser Leu Leu Leu Pro Pro Thr Pro
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gag cgg gca ctc ttc gct tcg cca tcc ccc gac cct tca ccc cga gga 96
Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg Gly
20 25 30

03-075-US

ctg	ggc	gcc	tcc	tcc	ggc	gca	gct	gag	gga	gcg	ggg	gcc	ggt	ctc	ctg	144
Leu	Gly	Ala	Ser	Ser	Gly	Ala	Ala	Glu	Gly	Ala	Gly	Ala	Gly	Leu	Leu	
		35					40					45				
ctc	ggt	tgt	cga	gcc	tcc	atg	tcg	gat	aat	cag	agc	tgg	aac	tcg	tcg	192
Leu	Gly	Cys	Arg	Ala	Ser	Met	Ser	Asp	Asn	Gln	Ser	Trp	Asn	Ser	Ser	
	50					55					60					
ggc	tcg	gag	gag	gat	cca	gag	acg	gag	tct	ggg	ccg	cct	gtg	gag	cgc	240
Gly	Ser	Glu	Glu	Asp	Pro	Glu	Thr	Glu	Ser	Gly	Pro	Pro	Val	Glu	Arg	
65					70					75					80	
tgc	ggg	gtc	ctc	agt	aag	tgg	aca	aac	tac	att	cat	ggg	tgg	cag	gat	288
Cys	Gly	Val	Leu	Ser	Lys	Trp	Thr	Asn	Tyr	Ile	His	Gly	Trp	Gln	Asp	
				85					90					95		
cgt	tgg	gta	gtt	ttg	aaa	aat	aat	gct	ctg	agt	tac	tac	aaa	tct	gaa	336
Arg	Trp	Val	Val	Leu	Lys	Asn	Asn	Ala	Leu	Ser	Tyr	Tyr	Lys	Ser	Glu	
			100					105					110			
gat	gaa	aca	gag	tat	ggc	tgc	aga	gga	tcc	atc	tgt	ctt	agc	aag	gct	384
Asp	Glu	Thr	Glu	Tyr	Gly	Cys	Arg	Gly	Ser	Ile	Cys	Leu	Ser	Lys	Ala	
		115					120					125				
gtc	atc	aca	cct	cac	gat	ttt	gat	gaa	tgt	cga	ttt	gat	att	agt	gta	432
Val	Ile	Thr	Pro	His	Asp	Phe	Asp	Glu	Cys	Arg	Phe	Asp	Ile	Ser	Val	
	130					135					140					
aat	gat	agt	gtt	tgg	tat	ctt	cgt	gct	cag	gat	cca	gat	cat	aga	cag	480
Asn	Asp	Ser	Val	Trp	Tyr	Leu	Arg	Ala	Gln	Asp	Pro	Asp	His	Arg	Gln	
145					150					155					160	
caa	tgg	ata	gat	gcc	att	gaa	cag	cac	aag	act	gaa	tct	gga	tat	gga	528
Gln	Trp	Ile	Asp	Ala	Ile	Glu	Gln	His	Lys	Thr	Glu	Ser	Gly	Tyr	Gly	
				165					170					175		
tct	gaa	tcc	agc	ttg	cgt	cga	cat	ggc	tca	atg	gtg	tcc	ctg	gtg	tct	576
Ser	Glu	Ser	Ser	Leu	Arg	Arg	His	Gly	Ser	Met	Val	Ser	Leu	Val	Ser	
			180					185					190			
gga	gca	agt	ggc	tac	tct	gca	aca	tcc	acc	tct	tca	ttc	aag	aaa	ggc	624
Gly	Ala	Ser	Gly	Tyr	Ser	Ala	Thr	Ser	Thr	Ser	Ser	Phe	Lys	Lys	Gly	
		195					200					205				
cac	agt	tta	cgt	gag	aag	ttg	gct	gaa	atg	gaa	aca	ttt	aga	gac	atc	672
His	Ser	Leu	Arg	Glu	Lys	Leu	Ala	Glu	Met	Glu	Thr	Phe	Arg	Asp	Ile	
	210					215					220					
tta	tgt	aga	caa	gtt	gac	acg	cta	cag	aag	tac	ttt	gat	gcc	tgt	gct	720
Leu	Cys	Arg	Gln	Val	Asp	Thr	Leu	Gln	Lys	Tyr	Phe	Asp	Ala	Cys	Ala	
225					230					235					240	
gat	gct	gtc	tct	aag	gat	gaa	ctt	caa	agg	gat	aaa	gtg	gta	gaa	gat	768
Asp	Ala	Val	Ser	Lys	Asp	Glu	Leu	Gln	Arg	Asp	Lys	Val	Val	Glu	Asp	
				245					250					255		
gat	gaa	gat	gac	ttt	cct	aca	acg	cgt	tct	gat	ggt	gac	ttc	ttg	cat	816
Asp	Glu	Asp	Asp	Phe	Pro	Thr	Thr	Arg	Ser	Asp	Gly	Asp	Phe	Leu	His	
			260					265					270			
agt	acc	aac	ggc	aat	aaa	gaa	aag	tta	ttt	cca	cat	gtg	aca	cca	aaa	864
Ser	Thr	Asn	Gly	Asn	Lys	Glu	Lys	Leu	Phe	Pro	His	Val	Thr	Pro	Lys	
		275					280					285				

03-075-US

gga Gly	att Ile	aat Asn	ggt Gly	ata Ile	gac Asp	ttt Phe	aaa Lys	ggg Gly	gaa Glu	gcg Ala	ata Ile	act Thr	ttt Phe	aaa Lys	gca Ala	912
290						295					300					
act Thr	act Thr	gct Ala	gga Gly	atc Ile	ctt Leu	gca Ala	aca Thr	ctt Leu	tct Ser	cat His	tgt Cys	att Ile	gaa Glu	cta Leu	atg Met	960
305					310					315					320	
gtt Val	aaa Lys	cgt Arg	gag Glu	gac Asp	agc Ser	tgg Trp	cag Gln	aag Lys	aga Arg	ctg Leu	gat Asp	aag Lys	gaa Glu	act Thr	gag Glu	1008
				325					330					335		
aag Lys	aaa Lys	aga Arg	aga Arg	aca Thr	gag Glu	gaa Glu	gca Ala	tat Tyr	aaa Lys	aat Asn	gca Ala	atg Met	aca Thr	gaa Glu	ctt Leu	1056
			340					345					350			
aag Lys	aaa Lys	aaa Lys	tcc Ser	cac His	ttt Phe	gga Gly	gga Gly	cca Pro	gat Asp	tat Tyr	gaa Glu	gaa Glu	ggc Gly	cct Pro	aac Asn	1104
		355					360					365				
agt Ser	ctg Leu	att Ile	aat Asn	gaa Glu	gaa Glu	gag Glu	ttc Phe	ttt Phe	gat Asp	gct Ala	gtt Val	gaa Glu	gct Ala	gct Ala	ctt Leu	1152
	370					375					380					
gac Asp	aga Arg	caa Gln	gat Asp	aaa Lys	ata Ile	gaa Glu	gaa Glu	cag Gln	tca Ser	cag Gln	agt Ser	gaa Glu	aag Lys	gtg Val	aga Arg	1200
385					390					395					400	
tta Leu	cat His	tgg Trp	cct Pro	aca Thr	tcc Ser	ttg Leu	ccc Pro	tct Ser	gga Gly	gat Asp	gcc Ala	ttt Phe	tct Ser	tct Ser	gtg Val	1248
				405					410					415		
ggg Gly	aca Thr	cat His	aga Arg	ttt Phe	gtc Val	caa Gln	aag Lys	ccc Pro	tat Tyr	agt Ser	cgc Arg	tct Ser	tcc Ser	tcc Ser	atg Met	1296
			420					425					430			
tct Ser	tcc Ser	att Ile	gat Asp	cta Leu	gtc Val	agt Ser	gcc Ala	tct Ser	gat Asp	gat Asp	gtt Val	cac His	aga Arg	ttc Phe	agc Ser	1344
		435					440					445				
tcc Ser	cag Gln	gtt Val	gaa Glu	gag Glu	atg Met	gtg Val	cag Gln	aac Asn	cac His	atg Met	act Thr	tac Tyr	tca Ser	tta Leu	cag Gln	1392
	450					455					460					
gat Asp	gta Val	ggc Gly	gga Gly	gat Asp	gcc Ala	aat Asn	tgg Trp	cag Gln	ttg Leu	gtt Val	gta Val	gaa Glu	gaa Glu	gga Gly	gaa Glu	1440
465					470					475					480	
atg Met	aag Lys	gta Val	tac Tyr	aga Arg	aga Arg	gaa Glu	gta Val	gaa Glu	gaa Glu	aat Asn	ggg Gly	att Ile	gtt Val	ctg Leu	gat Asp	1488
				485				490						495		
cct Pro	tta Leu	aaa Lys	gct Ala	acc Thr	cat His	gca Ala	gtt Val	aaa Lys	ggc Gly	gtc Val	aca Thr	gga Gly	cat His	gaa Glu	gtc Val	1536
			500					505					510			
tgc Cys	aat Asn	tat Tyr	ttc Phe	tgg Trp	aat Asn	gtt Val	gac Asp	gtt Val	cgc Arg	aat Asn	gac Asp	tgg Trp	gaa Glu	aca Thr	act Thr	1584
		515					520					525				
ata Ile	gaa Glu	aac Asn	ttt Phe	cat His	gtg Val	gtg Val	gaa Glu	aca Thr	tta Leu	gct Ala	gat Asp	aat Asn	gca Ala	atc Ile	atc Ile	1632

03-075-US
540

530

535

att	tat	caa	aca	cac	aag	agg	gtg	tgg	cct	gct	tct	cag	cga	gac	gta	1680
Ile	Tyr	Gln	Thr	His	Lys	Arg	Val	Trp	Pro	Ala	Ser	Gln	Arg	Asp	Val	
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tta	tat	ctt	tct	gtc	att	cga	aag	ata	cca	gcc	ttg	act	gaa	aat	gac	1728
Leu	Tyr	Leu	Ser	Val	Ile	Arg	Lys	Ile	Pro	Ala	Leu	Thr	Glu	Asn	Asp	
				565					570					575		
cct	gaa	act	tgg	ata	gtt	tgt	aat	ttt	tct	gtg	gat	cat	gac	agt	gct	1776
Pro	Glu	Thr	Trp	Ile	Val	Cys	Asn	Phe	Ser	Val	Asp	His	Asp	Ser	Ala	
			580					585					590			
cct	cta	aac	aac	cga	tgt	gtc	cgt	gcc	aaa	ata	aat	gtt	gct	atg	att	1824
Pro	Leu	Asn	Asn	Arg	Cys	Val	Arg	Ala	Lys	Ile	Asn	Val	Ala	Met	Ile	
		595					600					605				
tgt	caa	acc	ttg	gta	agc	cca	cca	gag	gga	aac	cag	gaa	att	agc	agg	1872
Cys	Gln	Thr	Leu	Val	Ser	Pro	Pro	Glu	Gly	Asn	Gln	Glu	Ile	Ser	Arg	
	610					615					620					
gac	aac	att	cta	tgc	aag	att	aca	tat	gta	gct	aat	gtg	aac	cct	gga	1920
Asp	Asn	Ile	Leu	Cys	Lys	Ile	Thr	Tyr	Val	Ala	Asn	Val	Asn	Pro	Gly	
	625				630					635					640	
gga	tgg	gca	cca	gcc	tca	gtg	tta	agg	gca	gtg	gca	aag	cga	gag	tat	1968
Gly	Trp	Ala	Pro	Ala	Ser	Val	Leu	Arg	Ala	Val	Ala	Lys	Arg	Glu	Tyr	
				645					650					655		
cct	aaa	ttt	cta	aaa	cgt	ttt	act	tct	tac	gtc	caa	gaa	aaa	act	gca	2016
Pro	Lys	Phe	Leu	Lys	Arg	Phe	Thr	Ser	Tyr	Val	Gln	Glu	Lys	Thr	Ala	
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			20					25					30			
Leu	Gly	Ala	Ser	Ser	Gly	Ala	Ala	Glu	Gly	Ala	Gly	Ala	Gly	Leu	Leu	
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Leu	Gly	Cys	Arg	Ala	Ser	Met	Ser	Asp	Asn	Gln	Ser	Trp	Asn	Ser	Ser	
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03-075-US

Gly Ser Glu Glu Asp Pro Glu Thr Glu Ser Gly Pro Pro Val Glu Arg
65 70 75 80

Cys Gly Val Leu Ser Lys Trp Thr Asn Tyr Ile His Gly Trp Gln Asp
85 90 95

Arg Trp Val Val Leu Lys Asn Asn Ala Leu Ser Tyr Tyr Lys Ser Glu
100 105 110

Asp Glu Thr Glu Tyr Gly Cys Arg Gly Ser Ile Cys Leu Ser Lys Ala
115 120 125

Val Ile Thr Pro His Asp Phe Asp Glu Cys Arg Phe Asp Ile Ser Val
130 135 140

Asn Asp Ser Val Trp Tyr Leu Arg Ala Gln Asp Pro Asp His Arg Gln
145 150 155 160

Gln Trp Ile Asp Ala Ile Glu Gln His Lys Thr Glu Ser Gly Tyr Gly
165 170 175

Ser Glu Ser Ser Leu Arg Arg His Gly Ser Met Val Ser Leu Val Ser
180 185 190

Gly Ala Ser Gly Tyr Ser Ala Thr Ser Thr Ser Ser Phe Lys Lys Gly
195 200 205

His Ser Leu Arg Glu Lys Leu Ala Glu Met Glu Thr Phe Arg Asp Ile
210 215 220

Leu Cys Arg Gln Val Asp Thr Leu Gln Lys Tyr Phe Asp Ala Cys Ala
225 230 235 240

Asp Ala Val Ser Lys Asp Glu Leu Gln Arg Asp Lys Val Val Glu Asp
245 250 255

Asp Glu Asp Asp Phe Pro Thr Thr Arg Ser Asp Gly Asp Phe Leu His
260 265 270

Ser Thr Asn Gly Asn Lys Glu Lys Leu Phe Pro His Val Thr Pro Lys
275 280 285

Gly Ile Asn Gly Ile Asp Phe Lys Gly Glu Ala Ile Thr Phe Lys Ala
290 295 300

Thr Thr Ala Gly Ile Leu Ala Thr Leu Ser His Cys Ile Glu Leu Met

305	03-075-US										320				
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Lys	Lys	Lys 355	Ser	His	Phe	Gly	Gly 360	Pro	Asp	Tyr	Glu	Glu 365	Gly	Pro	Asn
Ser	Leu 370	Ile	Asn	Glu	Glu	Glu 375	Phe	Phe	Asp	Ala	Val 380	Glu	Ala	Ala	Leu
Asp 385	Arg	Gln	Asp	Lys	Ile 390	Glu	Glu	Gln	Ser	Gln 395	Ser	Glu	Lys	Val	Arg 400
Leu	His	Trp	Pro	Thr 405	Ser	Leu	Pro	Ser	Gly 410	Asp	Ala	Phe	Ser	Ser 415	Val
Gly	Thr	His	Arg 420	Phe	Val	Gln	Lys	Pro 425	Tyr	Ser	Arg	Ser	Ser 430	Ser	Met
Ser	Ser	Ile 435	Asp	Leu	Val	Ser	Ala 440	Ser	Asp	Asp	Val	His 445	Arg	Phe	Ser
Ser	Gln 450	Val	Glu	Glu	Met	Val 455	Gln	Asn	His	Met	Thr 460	Tyr	Ser	Leu	Gln
Asp 465	Val	Gly	Gly	Asp	Ala 470	Asn	Trp	Gln	Leu	Val 475	Val	Glu	Glu	Gly	Glu 480
Met	Lys	Val	Tyr	Arg 485	Arg	Glu	Val	Glu	Glu 490	Asn	Gly	Ile	Val	Leu 495	Asp
Pro	Leu	Lys	Ala 500	Thr	His	Ala	Val	Lys 505	Gly	Val	Thr	Gly	His 510	Glu	Val
Cys	Asn	Tyr 515	Phe	Trp	Asn	Val	Asp 520	Val	Arg	Asn	Asp	Trp 525	Glu	Thr	Thr
Ile	Glu 530	Asn	Phe	His	Val	Val 535	Glu	Thr	Leu	Ala	Asp 540	Asn	Ala	Ile	Ile
Ile 545	Tyr	Gln	Thr	His	Lys 550	Arg	Val	Trp	Pro	Ala 555	Ser	Gln	Arg	Asp	Val 560

03-075-US

Leu Tyr Leu Ser Val Ile Arg Lys Ile Pro Ala Leu Thr Glu Asn Asp
565 570 575

Pro Glu Thr Trp Ile Val Cys Asn Phe Ser Val Asp His Asp Ser Ala
580 585 590

Pro Leu Asn Asn Arg Cys Val Arg Ala Lys Ile Asn Val Ala Met Ile
595 600 605

Cys Gln Thr Leu Val Ser Pro Pro Glu Gly Asn Gln Glu Ile Ser Arg
610 615 620

Asp Asn Ile Leu Cys Lys Ile Thr Tyr Val Ala Asn Val Asn Pro Gly
625 630 635 640

Gly Trp Ala Pro Ala Ser Val Leu Arg Ala Val Ala Lys Arg Glu Tyr
645 650 655

Pro Lys Phe Leu Lys Arg Phe Thr Ser Tyr Val Gln Glu Lys Thr Ala
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Gly Lys Pro Ile Leu Phe
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gag cgg gca ctc ttc gct tcg cca tcc ccc gac cct tca ccc cga gga	96
Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg Gly	
20 25 30	
ctg ggc gcc tcc tcc ggc gca gct gag gga gcg ggg gcc ggt ctc ctg	144
Leu Gly Ala Ser Ser Gly Ala Ala Glu Gly Ala Gly Ala Gly Leu Leu	
35 40 45	
ctc ggt tgt cga gcc tcc atg tcg gat aat cag agc tgg aac tcg tcg	192
Leu Gly Cys Arg Ala Ser Met Ser Asp Asn Gln Ser Trp Asn Ser Ser	
50 55 60	
ggc tcg gag gag gat cca gag acg gag tct ggg ccg cct gtg gag cgc	240

03-075-US

Gly 65	Ser	Glu	Glu	Asp	Pro 70	Glu	Thr	Glu	Ser	Gly 75	Pro	Pro	Val	Glu	Arg 80	
tgc Cys	ggg Gly	gtc Val	ctc Leu	agt Ser 85	aag Lys	tgg Trp	aca Thr	aac Asn	tac Tyr 90	att Ile	cat His	ggg Gly	tgg Trp	cag Gln 95	gat Asp	288
cgt Arg	tgg Trp	gta Val	gtt Val 100	ttg Leu	aaa Lys	aat Asn	aat Asn	gct Ala 105	ctg Leu	agt Ser	tac Tyr	tac Tyr	aaa Lys 110	tct Ser	gaa Glu	336
gat Asp	gaa Glu	aca Thr 115	gag Glu	tat Tyr	ggc Gly	tgc Cys	aga Arg 120	gga Gly	tcc Ser	atc Ile	tgt Cys	ctt Leu 125	agc Ser	aag Lys	gct Ala	384
gtc Val	atc Ile 130	aca Thr	cct Pro	cac His	gat Asp	ttt Phe 135	gat Asp	gaa Glu	tgt Cys	cga Arg	ttt Phe 140	gat Asp	att Ile	agt Ser	gta Val	432
aat Asn 145	gat Asp	agt Ser	gtt Val	tgg Trp	tat Tyr 150	ctt Leu	cgt Arg	gct Ala	cag Gln	gat Asp 155	cca Pro	gat Asp	cat His	aga Arg	cag Gln 160	480
caa Gln	tgg Trp	ata Ile	gat Asp	gcc Ala 165	att Ile	gaa Glu	cag Gln	cac His	aag Lys 170	act Thr	gaa Glu	tct Ser	gga Gly	tat Tyr 175	gga Gly	528
tct Ser	gaa Glu	tcc Ser	agc Ser 180	ttg Leu	cgt Arg	cga Arg	cat His	ggc Gly 185	tca Ser	atg Met	gtg Val	tcc Ser	ctg Leu 190	gtg Val	tct Ser	576
gga Gly	gca Ala	agt Ser 195	ggc Gly	tac Tyr	tct Ser	gca Ala	aca Thr 200	tcc Ser	acc Thr	tct Ser	tca Ser	ttc Phe 205	aag Lys	aaa Lys	ggc Gly	624
cac His	agt Ser 210	tta Leu	cgt Arg	gag Glu	aag Lys	ttg Leu 215	gct Ala	gaa Glu	atg Met	gaa Glu	aca Thr 220	ttt Phe	aga Arg	gac Asp	atc Ile	672
tta Leu 225	tgt Cys	aga Arg	caa Gln	gtt Val	gac Asp 230	acg Thr	cta Leu	cag Gln	aag Lys	tac Tyr 235	ttt Phe	gat Asp	gcc Ala	tgt Cys	gct Ala 240	720
gat Asp	gct Ala	gtc Val	tct Ser	aag Lys 245	gat Asp	gaa Glu	ctt Leu	caa Gln	agg Arg 250	gat Asp	aaa Lys	gtg Val	gta Val	gaa Glu 255	gat Asp	768
gat Asp	gaa Glu	gat Asp	gac Asp 260	ttt Phe	cct Pro	aca Thr	acg Thr	cgt Arg 265	tct Ser	gat Asp	ggt Gly	gac Asp 270	ttc Phe	ttg Leu	cat His	816
agt Ser	acc Thr	aac Asn 275	ggc Gly	aat Asn	aaa Lys	gaa Glu	aag Lys 280	tta Leu	ttt Phe	cca Pro	cat His	gtg Val 285	aca Thr	cca Pro	aaa Lys	864
gga Gly	att Ile 290	aat Asn	ggt Gly	ata Ile	gac Asp	ttt Phe 295	aaa Lys	ggg Gly	gaa Glu	gcg Ala	ata Ile 300	act Thr	ttt Phe	aaa Lys	gca Ala	912
act Thr 305	act Thr	gct Ala	gga Gly	atc Ile	ctt Leu 310	gca Ala	aca Thr	ctt Leu	tct Ser	cat His 315	tgt Cys	att Ile	gaa Glu	cta Leu	atg Met 320	960

03-075-US

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Val	Lys	Arg	Glu	Asp	Ser	Trp	Gln	Lys	Arg	Leu	Asp	Lys	Glu	Thr	Glu	
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Lys	Lys	Arg	Arg	Thr	Glu	Glu	Ala	Tyr	Lys	Asn	Ala	Met	Thr	Glu	Leu	
			340					345					350			
aag	aaa	aaa	tcc	cac	ttt	gga	gga	cca	gat	tat	gaa	gaa	ggc	cct	aac	1104
Lys	Lys	Lys	Ser	His	Phe	Gly	Gly	Pro	Asp	Tyr	Glu	Glu	Gly	Pro	Asn	
		355					360					365				
agt	ctg	att	aat	gaa	gaa	gag	ttc	ttt	gat	gct	ggt	gaa	gct	gct	ctt	1152
Ser	Leu	Ile	Asn	Glu	Glu	Glu	Phe	Phe	Asp	Ala	Val	Glu	Ala	Ala	Leu	
	370					375					380					
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Asp	Arg	Gln	Asp	Lys	Ile	Glu	Glu	Gln	Ser	Gln	Ser	Glu	Lys	Val	Arg	
385					390					395					400	
tta	cat	tgg	cct	aca	tcc	ttg	ccc	tct	gga	gat	gcc	ttt	tct	tct	gtg	1248
Leu	His	Trp	Pro	Thr	Ser	Leu	Pro	Ser	Gly	Asp	Ala	Phe	Ser	Ser	Val	
				405					410					415		
ggg	aca	cat	aga	ttt	gtc	caa	aag	ggt	gaa	gag	atg	gtg	cag	aac	cac	1296
Gly	Thr	His	Arg	Phe	Val	Gln	Lys	Val	Glu	Glu	Met	Val	Gln	Asn	His	
			420					425					430			
atg	act	tac	tca	tta	cag	gat	gta	ggc	gga	gat	gcc	aat	tgg	cag	ttg	1344
Met	Thr	Tyr	Ser	Leu	Gln	Asp	Val	Gly	Gly	Asp	Ala	Asn	Trp	Gln	Leu	
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ggt	gta	gaa	gaa	gga	gaa	atg	aag	gta	tac	aga	aga	gaa	gta	gaa	gaa	1392
Val	Val	Glu	Glu	Gly	Glu	Met	Lys	Val	Tyr	Arg	Arg	Glu	Val	Glu	Glu	
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aat	ggg	att	gtt	ctg	gat	cct	tta	aaa	gct	acc	cat	gca	gtt	aaa	ggc	1440
Asn	Gly	Ile	Val	Leu	Asp	Pro	Leu	Lys	Ala	Thr	His	Ala	Val	Lys	Gly	
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gtc	aca	gga	cat	gaa	gtc	tgc	aat	tat	ttc	tgg	aat	gtt	gac	gtt	cgc	1488
Val	Thr	Gly	His	Glu	Val	Cys	Asn	Tyr	Phe	Trp	Asn	Val	Asp	Val	Arg	
				485					490					495		
aat	gac	tgg	gaa	aca	act	ata	gaa	aac	ttt	cat	gtg	gtg	gaa	aca	tta	1536
Asn	Asp	Trp	Glu	Thr	Thr	Ile	Glu	Asn	Phe	His	Val	Val	Glu	Thr	Leu	
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gct	gat	aat	gca	atc	atc	att	tat	caa	aca	cac	aag	agg	gtg	tgg	cct	1584
Ala	Asp	Asn	Ala	Ile	Ile	Ile	Tyr	Gln	Thr	His	Lys	Arg	Val	Trp	Pro	
		515					520					525				
gct	tct	cag	cga	gac	gta	tta	tat	ctt	tct	gtc	att	cga	aag	ata	cca	1632
Ala	Ser	Gln	Arg	Asp	Val	Leu	Tyr	Leu	Ser	Val	Ile	Arg	Lys	Ile	Pro	
	530					535					540					
gcc	ttg	act	gaa	aat	gac	cct	gaa	act	tgg	ata	gtt	tgt	aat	ttt	tct	1680
Ala	Leu	Thr	Glu	Asn	Asp	Pro	Glu	Thr	Trp	Ile	Val	Cys	Asn	Phe	Ser	
545					550					555					560	
gtg	gat	cat	gac	agt	gct	cct	cta	aac	aac	cga	tgt	gtc	cgt	gcc	aaa	1728
Val	Asp	His	Asp	Ser	Ala	Pro	Leu	Asn	Asn	Arg	Cys	Val	Arg	Ala	Lys	
				565					570					575		

03-075-US

ata aat gtt gct atg att tgt caa acc ttg gta agc cca cca gag gga	1776
Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser Pro Pro Glu Gly	
580 585 590	
aac cag gaa att agc agg gac aac att cta tgc aag att aca tat gta	1824
Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr Tyr Val	
595 600 605	
gct aat gtg aac cct gga gga tgg gca cca gcc tca gtg tta agg gca	1872
Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val Leu Arg Ala	
610 615 620	
gtg gca aag cga gag tat cct aaa ttt cta aaa cgt ttt act tct tac	1920
Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe Thr Ser Tyr	
625 630 635 640	
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645 650	

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Leu Gly Ala Ser Ser Gly Ala Ala Glu Gly Ala Gly Ala Gly Leu Leu
 35 40 45

Leu Gly Cys Arg Ala Ser Met Ser Asp Asn Gln Ser Trp Asn Ser Ser
 50 55 60

Gly Ser Glu Glu Asp Pro Glu Thr Glu Ser Gly Pro Pro Val Glu Arg
 65 70 75 80

Cys Gly Val Leu Ser Lys Trp Thr Asn Tyr Ile His Gly Trp Gln Asp
 85 90 95

Arg Trp Val Val Leu Lys Asn Asn Ala Leu Ser Tyr Tyr Lys Ser Glu
 100 105 110

Asp Glu Thr Glu Tyr Gly Cys Arg Gly Ser Ile Cys Leu Ser Lys Ala
 115 120 125

03-075-US

Val Ile Thr Pro His Asp Phe Asp Glu Cys Arg Phe Asp Ile Ser Val
130 135 140

Asn Asp Ser Val Trp Tyr Leu Arg Ala Gln Asp Pro Asp His Arg Gln
145 150 155 160

Gln Trp Ile Asp Ala Ile Glu Gln His Lys Thr Glu Ser Gly Tyr Gly
165 170 175

Ser Glu Ser Ser Leu Arg Arg His Gly Ser Met Val Ser Leu Val Ser
180 185 190

Gly Ala Ser Gly Tyr Ser Ala Thr Ser Thr Ser Ser Phe Lys Lys Gly
195 200 205

His Ser Leu Arg Glu Lys Leu Ala Glu Met Glu Thr Phe Arg Asp Ile
210 215 220

Leu Cys Arg Gln Val Asp Thr Leu Gln Lys Tyr Phe Asp Ala Cys Ala
225 230 235 240

Asp Ala Val Ser Lys Asp Glu Leu Gln Arg Asp Lys Val Val Glu Asp
245 250 255

Asp Glu Asp Asp Phe Pro Thr Thr Arg Ser Asp Gly Asp Phe Leu His
260 265 270

Ser Thr Asn Gly Asn Lys Glu Lys Leu Phe Pro His Val Thr Pro Lys
275 280 285

Gly Ile Asn Gly Ile Asp Phe Lys Gly Glu Ala Ile Thr Phe Lys Ala
290 295 300

Thr Thr Ala Gly Ile Leu Ala Thr Leu Ser His Cys Ile Glu Leu Met
305 310 315 320

Val Lys Arg Glu Asp Ser Trp Gln Lys Arg Leu Asp Lys Glu Thr Glu
325 330 335

Lys Lys Arg Arg Thr Glu Glu Ala Tyr Lys Asn Ala Met Thr Glu Leu
340 345 350

Lys Lys Lys Ser His Phe Gly Gly Pro Asp Tyr Glu Glu Gly Pro Asn
355 360 365

Ser Leu Ile Asn Glu Glu Glu Phe Phe Asp Ala Val Glu Ala Ala Leu
370 375 380

03-075-US

Asp Arg Gln Asp Lys Ile Glu Glu Gln Ser Gln Ser Glu Lys Val Arg
385 390 395 400

Leu His Trp Pro Thr Ser Leu Pro Ser Gly Asp Ala Phe Ser Ser Val
405 410 415

Gly Thr His Arg Phe Val Gln Lys Val Glu Glu Met Val Gln Asn His
420 425 430

Met Thr Tyr Ser Leu Gln Asp Val Gly Gly Asp Ala Asn Trp Gln Leu
435 440 445

Val Val Glu Glu Gly Glu Met Lys Val Tyr Arg Arg Glu Val Glu Glu
450 455 460

Asn Gly Ile Val Leu Asp Pro Leu Lys Ala Thr His Ala Val Lys Gly
465 470 475 480

Val Thr Gly His Glu Val Cys Asn Tyr Phe Trp Asn Val Asp Val Arg
485 490 495

Asn Asp Trp Glu Thr Thr Ile Glu Asn Phe His Val Val Glu Thr Leu
500 505 510

Ala Asp Asn Ala Ile Ile Ile Tyr Gln Thr His Lys Arg Val Trp Pro
515 520 525

Ala Ser Gln Arg Asp Val Leu Tyr Leu Ser Val Ile Arg Lys Ile Pro
530 535 540

Ala Leu Thr Glu Asn Asp Pro Glu Thr Trp Ile Val Cys Asn Phe Ser
545 550 555 560

Val Asp His Asp Ser Ala Pro Leu Asn Asn Arg Cys Val Arg Ala Lys
565 570 575

Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser Pro Pro Glu Gly
580 585 590

Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr Tyr Val
595 600 605

Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val Leu Arg Ala
610 615 620

Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe Thr Ser Tyr
Page 57

625

630

640

Val Gln Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe
645 650

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Ser Ala Arg Cys Gln Ala Arg Arg Arg Gly Gly Arg Thr Ser Ser
20 25 30

ctc ctc ctg ctc ccc ccc aca ccg gag cgg gca ctc ttc gct tcg cca 144
Leu Leu Leu Leu Pro Pro Thr Pro Glu Arg Ala Leu Phe Ala Ser Pro
35 40 45

tcc ccc gac cct tca ccc cga gga ctg ggc gcc tcc tcc ggc gca gct 192
Ser Pro Asp Pro Ser Pro Arg Gly Leu Gly Ala Ser Ser Gly Ala Ala
50 55 60

gag gga gcg ggg gcc ggt ctc ctg ctc ggt tgt cga gcc tcc atg tcg 240
Glu Gly Ala Gly Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser Met Ser
65 70 75 80

gat aat cag agc tgg aac tcg tcg ggc tcg gag gag gat cca gag acg 288
Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro Glu Thr
85 90 95

gag tct ggg ccg cct gtg gag cgc tgc ggg gtc ctc agt aag tgg aca 336
Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp Thr
100 105 110

aac tac att cat ggg tgg cag gat cgt tgg gta gtt ttg aaa aat aat 384
Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn Asn
115 120 125

gct ctg agt tac tac aaa tct gaa gat gaa aca gag tat ggc tgc aga 432
Ala Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys Arg
130 135 140

gga tcc atc tgt ctt agc aag gct gtc atc aca cct cac gat ttt gat 480
Gly Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe Asp
145 150 155 160

gaa tgt cga ttt gat att agt gta aat gat agt gtt tgg tat ctt cgt 528
Glu Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu Arg

03-075-US																
165				170				175								
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cac His	aag Lys	act Thr 195	gaa Glu	tct Ser	gga Gly	tat Tyr	gga Gly 200	tct Ser	gaa Glu	tcc Ser	agc Ser	ttg Leu 205	cgt Arg	cga Arg	cat His	624
ggc Gly	tca Ser 210	atg Met	gtg Val	tcc Ser	ctg Leu	gtg Val 215	tct Ser	gga Gly	gca Ala	agt Ser	ggc Gly 220	tac Tyr	tct Ser	gca Ala	aca Thr	672
tcc Ser 225	acc Thr	tct Ser	tca Ser	ttc Phe	aag Lys 230	aaa Lys	ggc Gly	cac His	agt Ser	tta Leu 235	cgt Arg	gag Glu	aag Lys	ttg Leu	gct Ala 240	720
gaa Glu	atg Met	gaa Glu	aca Thr	ttt Phe 245	aga Arg	gac Asp	atc Ile	tta Leu 250	tgt Cys	aga Arg	caa Gln	gtt Val	gac Asp	acg Thr 255	cta Leu	768
cag Gln	aag Lys	tac Tyr	ttt Phe 260	gat Asp	gcc Ala	tgt Cys	gct Ala	gat Asp 265	gct Ala	gtc Val	tct Ser	aag Lys	gat Asp 270	gaa Glu	ctt Leu	816
caa Gln	agg Arg	gat Asp 275	aaa Lys	gtg Val	gta Val	gaa Glu	gat Asp 280	gat Asp	gaa Glu	gat Asp	gac Asp	ttt Phe 285	cct Pro	aca Thr	acg Thr	864
cgt Arg	tct Ser 290	gat Asp	ggg Gly	gac Asp	ttc Phe	ttg Leu 295	cat His	agt Ser	acc Thr	aac Asn	ggc Gly 300	aat Asn	aaa Lys	gaa Glu	aag Lys	912
tta Leu 305	ttt Phe	cca Pro	cat His	gtg Val 310	aca Thr	cca Pro	aaa Lys	gga Gly	att Ile	aat Asn 315	ggg Gly	ata Ile	gac Asp	ttt Phe	aaa Lys 320	960
ggg Gly	gaa Glu	gca Ala	ata Ile	act Thr 325	ttt Phe	aaa Lys	gca Ala	act Thr 330	act Thr	gct Ala	gga Gly	atc Ile	ctt Leu	gca Ala 335	aca Thr	1008
ctt Leu	tct Ser	cat His	tgt Cys 340	att Ile	gaa Glu	cta Leu	atg Met	gtt Val 345	aaa Lys	cgt Arg	gag Glu	gac Asp	agc Ser 350	tgg Trp	cag Gln	1056
aag Lys	aga Arg	ctg Leu 355	gat Asp	aag Lys	gaa Glu	act Thr	gag Glu 360	aag Lys	aaa Lys	aga Arg	aga Arg	aca Thr 365	gag Glu	gaa Glu	gca Ala	1104
tat Tyr	aaa Lys 370	aat Asn	gca Ala	atg Met	aca Thr	gaa Glu 375	ctt Leu	aag Lys	aaa Lys	aaa Lys	tcc Ser 380	cac His	ttt Phe	gga Gly	gga Gly	1152
cca Pro 385	gat Asp	tat Tyr	gaa Glu	gaa Glu	ggc Gly 390	cct Pro	aac Asn	agt Ser	ctg Leu	att Ile 395	aat Asn	gaa Glu	gaa Glu	gag Glu	ttc Phe 400	1200
ttt Phe	gat Asp	gct Ala	gtt Val	gaa Glu 405	gct Ala	gct Ala	ctt Leu	gac Asp	aga Arg 410	caa Gln	gat Asp	aaa Lys	ata Ile	gaa Glu 415	gaa Glu	1248
cag	tca	cag	agt	gaa	aag	gtg	aga	tta	cat	tgg	cct	aca	tcc	ttg	ccc	1296

03-075-US

Gln	Ser	Gln	Ser	Glu	Lys	Val	Arg	Leu	His	Trp	Pro	Thr	Ser	Leu	Pro	
			420					425					430			
tct	gga	gat	gcc	ttt	tct	tct	gtg	ggg	aca	cat	aga	ttt	gtc	caa	aag	1344
Ser	Gly	Asp	Ala	Phe	Ser	Ser	Val	Gly	Thr	His	Arg	Phe	Val	Gln	Lys	
		435					440					445				
ccc	tat	agt	cgc	tct	tcc	tcc	atg	tct	tcc	att	gat	cta	gtc	agt	gcc	1392
Pro	Tyr	Ser	Arg	Ser	Ser		Met	Ser	Ser	Ile	Asp	Leu	Val	Ser	Ala	
	450					455					460					
tct	gat	gat	gtt	cac	aga	ttc	agc	tcc	cag	gtt	gaa	gag	atg	gtg	cag	1440
Ser	Asp	Asp	Val	His	Arg	Phe	Ser	Ser	Gln	Val	Glu	Glu	Met	Val	Gln	
465					470					475					480	
aac	cac	atg	act	tac	tca	tta	cag	gat	gta	ggc	gga	gat	gcc	aat	tgg	1488
Asn	His	Met	Thr	Tyr	Ser	Leu	Gln	Asp	Val	Gly	Gly	Asp	Ala	Asn	Trp	
			485						490					495		
cag	ttg	gtt	gta	gaa	gaa	gga	gaa	atg	aag	gta	tac	aga	aga	gaa	gta	1536
Gln	Leu	Val	Val	Glu	Glu	Gly	Glu	Met	Lys	Val	Tyr	Arg	Arg	Glu	Val	
			500					505					510			
gaa	gaa	aat	ggg	att	gtt	ctg	gat	cct	tta	aaa	gct	acc	cat	gca	gtt	1584
Glu	Glu	Asn	Gly	Ile	Val	Leu	Asp	Pro	Leu	Lys	Ala	Thr	His	Ala	Val	
		515					520					525				
aaa	ggc	gtc	aca	gga	cat	gaa	gtc	tgc	aat	tat	ttc	tgg	aat	gtt	gac	1632
Lys	Gly	Val	Thr	Gly	His	Glu	Val	Cys	Asn	Tyr	Phe	Trp	Asn	Val	Asp	
	530					535					540					
gtt	cgc	aat	gac	tgg	gaa	aca	act	ata	gaa	aac	ttt	cat	gtg	gtg	gaa	1680
Val	Arg	Asn	Asp	Trp	Glu	Thr	Thr	Ile	Glu	Asn	Phe	His	Val	Val	Glu	
545					550					555					560	
aca	tta	gct	gat	aat	gca	atc	atc	att	tat	caa	aca	cac	aag	agg	gtg	1728
Thr	Leu	Ala	Asp	Asn	Ala	Ile	Ile	Ile	Tyr	Gln	Thr	His	Lys	Arg	Val	
				565					570					575		
tgg	cct	gct	tct	cag	cga	gac	gta	tta	tat	ctt	tct	gtc	att	cga	aag	1776
Trp	Pro	Ala	Ser	Gln	Arg	Asp	Val	Leu	Tyr	Leu	Ser	Val	Ile	Arg	Lys	
			580					585					590			
ata	cca	gcc	ttg	act	gaa	aat	gac	cct	gaa	act	tgg	ata	gtt	tgt	aat	1824
Ile	Pro	Ala	Leu	Thr	Glu	Asn	Asp	Pro	Glu	Thr	Trp	Ile	Val	Cys	Asn	
		595					600					605				
ttt	tct	gtg	gat	cat	gac	agt	gct	cct	cta	aac	aac	cga	tgt	gtc	cgt	1872
Phe	Ser	Val	Asp	His	Asp	Ser	Ala	Pro	Leu	Asn	Asn	Arg	Cys	Val	Arg	
	610					615					620					
gcc	aaa	ata	aat	gtt	gct	atg	att	tgt	caa	acc	ttg	gta	agc	cca	cca	1920
Ala	Lys	Ile	Asn	Val	Ala	Met	Ile	Cys	Gln	Thr	Leu	Val	Ser	Pro	Pro	
625					630					635					640	
gag	gga	aac	cag	gaa	att	agc	agg	gac	aac	att	cta	tgc	aag	att	aca	1968
Glu	Gly	Asn	Gln	Glu	Ile	Ser	Arg	Asp	Asn	Ile	Leu	Cys	Lys	Ile	Thr	
				645					650					655		
tat	gta	gct	aat	gtg	aac	cct	gga	gga	tgg	gca	cca	gcc	tca	gtg	tta	2016
Tyr	Val	Ala	Asn	Val	Asn	Pro	Gly	Gly	Trp	Ala	Pro	Ala	Ser	Val	Leu	
			660					665					670			

03-075-US

agg gca gtg gca aag cga gag tat cct aaa ttt cta aaa cgt ttt act 2064
 Arg Ala Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe Thr
 675 680 685

tct tac gtc caa gaa aaa act gca gga aag cct att ttg ttc tag 2109
 Ser Tyr Val Gln Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe
 690 695 700

<210> 22
 <211> 702
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 22

Asp Gly Trp Lys Gly Arg Leu Pro Ser Pro Leu Val Leu Leu Pro Arg
 1 5 10 15

Ser Ala Arg Cys Gln Ala Arg Arg Arg Gly Gly Arg Thr Ser Ser
 20 25 30

Leu Leu Leu Leu Pro Pro Thr Pro Glu Arg Ala Leu Phe Ala Ser Pro
 35 40 45

Ser Pro Asp Pro Ser Pro Arg Gly Leu Gly Ala Ser Ser Gly Ala Ala
 50 55 60

Glu Gly Ala Gly Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser Met Ser
 65 70 75 80

Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro Glu Thr
 85 90 95

Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp Thr
 100 105 110

Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn Asn
 115 120 125

Ala Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys Arg
 130 135 140

Gly Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe Asp
 145 150 155 160

Glu Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu Arg
 165 170 175

03-075-US

Ala Gln Asp Pro Asp His Arg Gln Gln Trp Ile Asp Ala Ile Glu Gln
180 185 190

His Lys Thr Glu Ser Gly Tyr Gly Ser Glu Ser Ser Leu Arg Arg His
195 200 205

Gly Ser Met Val Ser Leu Val Ser Gly Ala Ser Gly Tyr Ser Ala Thr
210 215 220

Ser Thr Ser Ser Phe Lys Lys Gly His Ser Leu Arg Glu Lys Leu Ala
225 230 235 240

Glu Met Glu Thr Phe Arg Asp Ile Leu Cys Arg Gln Val Asp Thr Leu
245 250 255

Gln Lys Tyr Phe Asp Ala Cys Ala Asp Ala Val Ser Lys Asp Glu Leu
260 265 270

Gln Arg Asp Lys Val Val Glu Asp Asp Glu Asp Asp Phe Pro Thr Thr
275 280 285

Arg Ser Asp Gly Asp Phe Leu His Ser Thr Asn Gly Asn Lys Glu Lys
290 295 300

Leu Phe Pro His Val Thr Pro Lys Gly Ile Asn Gly Ile Asp Phe Lys
305 310 315 320

Gly Glu Ala Ile Thr Phe Lys Ala Thr Thr Ala Gly Ile Leu Ala Thr
325 330 335

Leu Ser His Cys Ile Glu Leu Met Val Lys Arg Glu Asp Ser Trp Gln
340 345 350

Lys Arg Leu Asp Lys Glu Thr Glu Lys Lys Arg Arg Thr Glu Glu Ala
355 360 365

Tyr Lys Asn Ala Met Thr Glu Leu Lys Lys Lys Ser His Phe Gly Gly
370 375 380

Pro Asp Tyr Glu Glu Gly Pro Asn Ser Leu Ile Asn Glu Glu Glu Phe
385 390 395 400

Phe Asp Ala Val Glu Ala Ala Leu Asp Arg Gln Asp Lys Ile Glu Glu
405 410 415

Gln Ser Gln Ser Glu Lys Val Arg Leu His Trp Pro Thr Ser Leu Pro
420 425 430

03-075-US

Ser Gly Asp Ala Phe Ser Ser Val Gly Thr His Arg Phe Val Gln Lys
435 440 445

Pro Tyr Ser Arg Ser Ser Ser Met Ser Ser Ile Asp Leu Val Ser Ala
450 455 460

Ser Asp Asp Val His Arg Phe Ser Ser Gln Val Glu Glu Met Val Gln
465 470 475 480

Asn His Met Thr Tyr Ser Leu Gln Asp Val Gly Gly Asp Ala Asn Trp
485 490 495

Gln Leu Val Val Glu Glu Gly Glu Met Lys Val Tyr Arg Arg Glu Val
500 505 510

Glu Glu Asn Gly Ile Val Leu Asp Pro Leu Lys Ala Thr His Ala Val
515 520 525

Lys Gly Val Thr Gly His Glu Val Cys Asn Tyr Phe Trp Asn Val Asp
530 535 540

Val Arg Asn Asp Trp Glu Thr Thr Ile Glu Asn Phe His Val Val Glu
545 550 555 560

Thr Leu Ala Asp Asn Ala Ile Ile Ile Tyr Gln Thr His Lys Arg Val
565 570 575

Trp Pro Ala Ser Gln Arg Asp Val Leu Tyr Leu Ser Val Ile Arg Lys
580 585 590

Ile Pro Ala Leu Thr Glu Asn Asp Pro Glu Thr Trp Ile Val Cys Asn
595 600 605

Phe Ser Val Asp His Asp Ser Ala Pro Leu Asn Asn Arg Cys Val Arg
610 615 620

Ala Lys Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser Pro Pro
625 630 635 640

Glu Gly Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr
645 650 655

Tyr Val Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val Leu
660 665 670

Arg Ala Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe Thr
675 680 685

Ser Tyr Val Gln Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe
 690 695 700

<210> 23
 <211> 2031
 <212> DNA
 <213> artificial

<220>
 <223> Derived sequence

<220>
 <221> CDS
 <222> (1)..(2031)
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<400> 23
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 Asp Gly Trp Lys Gly Arg Leu Pro Ser Pro Leu Val Leu Leu Pro Arg
 1 5 10 15
 tcc gct cgg tgt cag gcg cgg cgg cgg cgc ggc ggg cgg act tcg tcc 96
 Ser Ala Arg Cys Gln Ala Arg Arg Arg Gly Gly Arg Thr Ser Ser
 20 25 30
 ctc ctc ctg ctc ccc ccc aca ccg gag cgg gca ctc ttc gct tcg cca 144
 Leu Leu Leu Leu Pro Pro Thr Pro Glu Arg Ala Leu Phe Ala Ser Pro
 35 40 45
 tcc ccc gac cct tca ccc cga gga ctg ggc gcc tcc tcc ggc gca gct 192
 Ser Pro Asp Pro Ser Pro Arg Gly Leu Gly Ala Ser Ser Gly Ala Ala
 50 55 60
 gag gga gcg ggg gcc ggt ctc ctg ctc ggt tgt cga gcc tcc atg tcg 240
 Glu Gly Ala Gly Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser Met Ser
 65 70 75 80
 gat aat cag agc tgg aac tcg tcg ggc tcg gag gag gat cca gag acg 288
 Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro Glu Thr
 85 90 95
 gag tct ggg ccg cct gtg gag cgc tgc ggg gtc ctc agt aag tgg aca 336
 Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp Thr
 100 105 110
 aac tac att cat ggg tgg cag gat cgt tgg gta gtt ttg aaa aat aat 384
 Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn Asn
 115 120 125
 gct ctg agt tac tac aaa tct gaa gat gaa aca gag tat ggc tgc aga 432
 Ala Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys Arg
 130 135 140
 gga tcc atc tgt ctt agc aag gct gtc atc aca cct cac gat ttt gat 480
 Gly Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe Asp
 145 150 155 160
 gaa tgt cga ttt gat att agt gta aat gat agt gtt tgg tat ctt cgt 528
 Glu Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu Arg
 165 170 175

03-075-US

gct Ala	cag Gln	gat Asp	cca Pro 180	gat Asp	cat His	aga Arg	cag Gln	caa Gln 185	tgg Trp	ata Ile	gat Asp	gcc Ala	att Ile 190	gaa Glu	cag Gln	576
cac His	aag Lys	act Thr 195	gaa Glu	tct Ser	gga Gly	tat Tyr	gga Gly 200	tct Ser	gaa Glu	tcc Ser	agc Ser	ttg Leu 205	cgt Arg	cga Arg	cat His	624
ggc Gly	tca Ser 210	atg Met	gtg Val	tcc Ser	ctg Leu	gtg Val 215	tct Ser	gga Gly	gca Ala	agt Ser	ggc Gly 220	tac Tyr	tct Ser	gca Ala	aca Thr	672
tcc Ser 225	acc Thr	tct Ser	tca Ser	ttc Phe	aag Lys 230	aaa Lys	ggc Gly	cac His	agt Ser	tta Leu 235	cgt Arg	gag Glu	aag Lys	ttg Leu	gct Ala 240	720
gaa Glu	atg Met	gaa Glu	aca Thr	ttt Phe 245	aga Arg	gac Asp	atc Ile	tta Leu	tgt Cys 250	aga Arg	caa Gln	gtt Val	gac Asp	acg Thr 255	cta Leu	768
cag Gln	aag Lys	tac Tyr	ttt Phe 260	gat Asp	gcc Ala	tgt Cys	gct Ala	gat Asp 265	gct Ala	gtc Val	tct Ser	aag Lys	gat Asp 270	gaa Glu	ctt Leu	816
caa Gln	agg Arg	gat Asp 275	aaa Lys	gtg Val	gta Val	gaa Glu	gat Asp 280	gat Asp	gaa Glu	gat Asp	gac Asp	ttt Phe 285	cct Pro	aca Thr	acg Thr	864
cgt Arg	tct Ser 290	gat Asp	ggt Gly	gac Asp	ttc Phe	ttg Leu 295	cat His	agt Ser	acc Thr	aac Asn	ggc Gly 300	aat Asn	aaa Lys	gaa Glu	aag Lys	912
tta Leu 305	ttt Phe	cca Pro	cat His	gtg Val	aca Thr 310	cca Pro	aaa Lys	gga Gly	att Ile	aat Asn 315	ggt Gly	ata Ile	gac Asp	ttt Phe	aaa Lys 320	960
ggg Gly	gaa Glu	gcg Ala	ata Ile	act Thr 325	ttt Phe	aaa Lys	gca Ala	act Thr	act Thr 330	gct Ala	gga Gly	atc Ile	ctt Leu	gca Ala 335	aca Thr	1008
ctt Leu	tct Ser	cat His	tgt Cys 340	att Ile	gaa Glu	cta Leu	atg Met	gtt Val 345	aaa Lys	cgt Arg	gag Glu	gac Asp	agc Ser 350	tgg Trp	cag Gln	1056
aag Lys	aga Arg	ctg Leu 355	gat Asp	aag Lys	gaa Glu	act Thr	gag Glu 360	aag Lys	aaa Lys	aga Arg	aga Arg	aca Thr 365	gag Glu	gaa Glu	gca Ala	1104
tat Tyr	aaa Lys 370	aat Asn	gca Ala	atg Met	aca Thr	gaa Glu 375	ctt Leu	aag Lys	aaa Lys	aaa Lys	tcc Ser 380	cac His	ttt Phe	gga Gly	gga Gly	1152
cca Pro 385	gat Asp	tat Tyr	gaa Glu	gaa Glu	ggc Gly 390	cct Pro	aac Asn	agt Ser	ctg Leu	att Ile 395	aat Asn	gaa Glu	gaa Glu	gag Glu	ttc Phe 400	1200
ttt Phe	gat Asp	gct Ala	gtt Val	gaa Glu 405	gct Ala	gct Ala	ctt Leu	gac Asp	aga Arg 410	caa Gln	gat Asp	aaa Lys	ata Ile	gaa Glu 415	gaa Glu	1248
cag Gln	tca Ser	cag Gln	agt Ser	gaa Glu	aag Lys	gtg Val	aga Arg	tta Leu	cat His	tgg Trp	cct Pro	aca Thr	tcc Ser	ttg Leu	ccc Pro	1296

03-075-US

420	425	430	
tct gga gat gcc ttt tct tct gtg ggg aca cat aga ttt gtc caa aag Ser Gly Asp Ala Phe Ser Ser Val Gly Thr His Arg Phe Val Gln Lys 435 440 445			1344
gtt gaa gag atg gtg cag aac cac atg act tac tca tta cag gat gta Val Glu Glu Met Val Gln Asn His Met Thr Tyr Ser Leu Gln Asp Val 450 455 460			1392
ggc gga gat gcc aat tgg cag ttg gtt gta gaa gaa gga gaa atg aag Gly Gly Asp Ala Asn Trp Gln Leu Val Val Glu Glu Gly Glu Met Lys 465 470 475 480			1440
gta tac aga aga gaa gta gaa gaa aat ggg att gtt ctg gat cct tta Val Tyr Arg Arg Glu Val Glu Glu Asn Gly Ile Val Leu Asp Pro Leu 485 490 495			1488
aaa gct acc cat gca gtt aaa ggc gtc aca gga cat gaa gtc tgc aat Lys Ala Thr His Ala Val Lys Gly Val Thr Gly His Glu Val Cys Asn 500 505 510			1536
tat ttc tgg aat gtt gac gtt cgc aat gac tgg gaa aca act ata gaa Tyr Phe Trp Asn Val Asp Val Arg Asn Asp Trp Glu Thr Thr Ile Glu 515 520 525			1584
aac ttt cat gtg gtg gaa aca tta gct gat aat gca atc atc att tat Asn Phe His Val Val Glu Thr Leu Ala Asp Asn Ala Ile Ile Ile Tyr 530 535 540			1632
caa aca cac aag agg gtg tgg cct gct tct cag cga gac gta tta tat Gln Thr His Lys Arg Val Trp Pro Ala Ser Gln Arg Asp Val Leu Tyr 545 550 555 560			1680
ctt tct gtc att cga aag ata cca gcc ttg act gaa aat gac cct gaa Leu Ser Val Ile Arg Lys Ile Pro Ala Leu Thr Glu Asn Asp Pro Glu 565 570 575			1728
act tgg ata gtt tgt aat ttt tct gtg gat cat gac agt gct cct cta Thr Trp Ile Val Cys Asn Phe Ser Val Asp His Asp Ser Ala Pro Leu 580 585 590			1776
aac aac cga tgt gtc cgt gcc aaa ata aat gtt gct atg att tgt caa Asn Asn Arg Cys Val Arg Ala Lys Ile Asn Val Ala Met Ile Cys Gln 595 600 605			1824
acc ttg gta agc cca cca gag gga aac cag gaa att agc agg gac aac Thr Leu Val Ser Pro Pro Glu Gly Asn Gln Glu Ile Ser Arg Asp Asn 610 615 620			1872
att cta tgc aag att aca tat gta gct aat gtg aac cct gga gga tgg Ile Leu Cys Lys Ile Thr Tyr Val Ala Asn Val Asn Pro Gly Gly Trp 625 630 635 640			1920
gca cca gcc tca gtg tta agg gca gtg gca aag cga gag tat cct aaa Ala Pro Ala Ser Val Leu Arg Ala Val Ala Lys Arg Glu Tyr Pro Lys 645 650 655			1968
ttt cta aaa cgt ttt act tct tac gtc caa gaa aaa act gca gga aag Phe Leu Lys Arg Phe Thr Ser Tyr Val Gln Glu Lys Thr Ala Gly Lys 660 665 670			2016
cct att ttg ttc tag			2031

Pro Ile Leu Phe
675

<210> 24
<211> 676
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 24

Asp Gly Trp Lys Gly Arg Leu Pro Ser Pro Leu Val Leu Leu Pro Arg
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Ser Ala Arg Cys Gln Ala Arg Arg Arg Gly Gly Arg Thr Ser Ser
20 25 30

Leu Leu Leu Leu Pro Pro Thr Pro Glu Arg Ala Leu Phe Ala Ser Pro
35 40 45

Ser Pro Asp Pro Ser Pro Arg Gly Leu Gly Ala Ser Ser Gly Ala Ala
50 55 60

Glu Gly Ala Gly Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser Met Ser
65 70 75 80

Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro Glu Thr
85 90 95

Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys Trp Thr
100 105 110

Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys Asn Asn
115 120 125

Ala Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly Cys Arg
130 135 140

Gly Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp Phe Asp
145 150 155 160

Glu Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr Leu Arg
165 170 175

Ala Gln Asp Pro Asp His Arg Gln Gln Trp Ile Asp Ala Ile Glu Gln
180 185 190

His Lys Thr Glu Ser Gly Tyr Gly Ser Glu Ser Ser Leu Arg Arg His
Page 67

195 200 205
 Gly Ser Met Val Ser Leu Val Ser Gly Ala Ser Gly Tyr Ser Ala Thr
 210 215 220
 Ser Thr Ser Ser Phe Lys Lys Gly His Ser Leu Arg Glu Lys Leu Ala
 225 230 235 240
 Glu Met Glu Thr Phe Arg Asp Ile Leu Cys Arg Gln Val Asp Thr Leu
 245 250 255
 Gln Lys Tyr Phe Asp Ala Cys Ala Asp Ala Val Ser Lys Asp Glu Leu
 260 265 270
 Gln Arg Asp Lys Val Val Glu Asp Asp Glu Asp Asp Phe Pro Thr Thr
 275 280 285
 Arg Ser Asp Gly Asp Phe Leu His Ser Thr Asn Gly Asn Lys Glu Lys
 290 295 300
 Leu Phe Pro His Val Thr Pro Lys Gly Ile Asn Gly Ile Asp Phe Lys
 305 310 315 320
 Gly Glu Ala Ile Thr Phe Lys Ala Thr Thr Ala Gly Ile Leu Ala Thr
 325 330 335
 Leu Ser His Cys Ile Glu Leu Met Val Lys Arg Glu Asp Ser Trp Gln
 340 345 350
 Lys Arg Leu Asp Lys Glu Thr Glu Lys Lys Arg Arg Thr Glu Glu Ala
 355 360 365
 Tyr Lys Asn Ala Met Thr Glu Leu Lys Lys Lys Ser His Phe Gly Gly
 370 375 380
 Pro Asp Tyr Glu Glu Gly Pro Asn Ser Leu Ile Asn Glu Glu Glu Phe
 385 390 395 400
 Phe Asp Ala Val Glu Ala Ala Leu Asp Arg Gln Asp Lys Ile Glu Glu
 405 410 415
 Gln Ser Gln Ser Glu Lys Val Arg Leu His Trp Pro Thr Ser Leu Pro
 420 425 430
 Ser Gly Asp Ala Phe Ser Ser Val Gly Thr His Arg Phe Val Gln Lys
 435 440 445

03-075-US

Val Glu Glu Met Val Gln Asn His Met Thr Tyr Ser Leu Gln Asp Val
450 455 460

Gly Gly Asp Ala Asn Trp Gln Leu Val Val Glu Glu Gly Glu Met Lys
465 470 475 480

Val Tyr Arg Arg Glu Val Glu Glu Asn Gly Ile Val Leu Asp Pro Leu
485 490 495

Lys Ala Thr His Ala Val Lys Gly Val Thr Gly His Glu Val Cys Asn
500 505 510

Tyr Phe Trp Asn Val Asp Val Arg Asn Asp Trp Glu Thr Thr Ile Glu
515 520 525

Asn Phe His Val Val Glu Thr Leu Ala Asp Asn Ala Ile Ile Ile Tyr
530 535 540

Gln Thr His Lys Arg Val Trp Pro Ala Ser Gln Arg Asp Val Leu Tyr
545 550 555 560

Leu Ser Val Ile Arg Lys Ile Pro Ala Leu Thr Glu Asn Asp Pro Glu
565 570 575

Thr Trp Ile Val Cys Asn Phe Ser Val Asp His Asp Ser Ala Pro Leu
580 585 590

Asn Asn Arg Cys Val Arg Ala Lys Ile Asn Val Ala Met Ile Cys Gln
595 600 605

Thr Leu Val Ser Pro Pro Glu Gly Asn Gln Glu Ile Ser Arg Asp Asn
610 615 620

Ile Leu Cys Lys Ile Thr Tyr Val Ala Asn Val Asn Pro Gly Gly Trp
625 630 635 640

Ala Pro Ala Ser Val Leu Arg Ala Val Ala Lys Arg Glu Tyr Pro Lys
645 650 655

Phe Leu Lys Arg Phe Thr Ser Tyr Val Gln Glu Lys Thr Ala Gly Lys
660 665 670

Pro Ile Leu Phe
675

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<212> DNA

<213> artificial

<220>

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<221> CDS

<222> (1)..(2181)

<223>

<400> 25

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1				5					10					15		

gtc	acg	gcg	acg	gcg	gcg	gcg	gct	gac	ggc	tgg	aag	ggt	agg	ctt	cct	96
Val	Thr	Ala	Thr	Ala	Ala	Ala	Ala	Asp	Gly	Trp	Lys	Gly	Arg	Leu	Pro	
			20					25					30			

tca	ccg	ctc	gtc	ctc	ctt	cct	cgc	tcc	gct	cgg	tgt	cag	gcg	cgg	cgg	144
Ser	Pro	Leu	Val	Leu	Leu	Pro	Arg	Ser	Ala	Arg	Cys	Gln	Ala	Arg	Arg	
		35					40					45				

cgg	cgc	ggc	ggg	cgg	act	tcg	tcc	ctc	ctc	ctg	ctc	ccc	ccc	aca	ccg	192
Arg	Arg	Gly	Gly	Arg	Thr	Ser	Ser	Leu	Leu	Leu	Leu	Pro	Pro	Thr	Pro	
	50					55					60					

gag	cgg	gca	ctc	ttc	gct	tcg	cca	tcc	ccc	gac	cct	tca	ccc	cga	gga	240
Glu	Arg	Ala	Leu	Phe	Ala	Ser	Pro	Ser	Pro	Asp	Pro	Ser	Pro	Arg	Gly	
65					70					75					80	

ctg	ggc	gcc	tcc	tcc	ggc	gca	gct	gag	gga	gcg	ggg	gcc	ggt	ctc	ctg	288
Leu	Gly	Ala	Ser	Ser	Gly	Ala	Ala	Glu	Gly	Ala	Gly	Ala	Gly	Leu	Leu	
				85					90					95		

ctc	ggt	tgt	cga	gcc	tcc	atg	tcg	gat	aat	cag	agc	tgg	aac	tcg	tcg	336
Leu	Gly	Cys	Arg	Ala	Ser	Met	Ser	Asp	Asn	Gln	Ser	Trp	Asn	Ser	Ser	
			100					105					110			

ggc	tcg	gag	gag	gat	cca	gag	acg	gag	tct	ggg	ccg	cct	gtg	gag	cgc	384
Gly	Ser	Glu	Glu	Asp	Pro	Glu	Thr	Glu	Ser	Gly	Pro	Pro	Val	Glu	Arg	
		115					120					125				

tgc	ggg	gtc	ctc	agt	aag	tgg	aca	aac	tac	att	cat	ggg	tgg	cag	gat	432
Cys	Gly	Val	Leu	Ser	Lys	Trp	Thr	Asn	Tyr	Ile	His	Gly	Trp	Gln	Asp	
	130					135					140					

cgt	tgg	gta	gtt	ttg	aaa	aat	aat	gct	ctg	agt	tac	tac	aaa	tct	gaa	480
Arg	Trp	Val	Val	Leu	Lys	Asn	Asn	Ala	Leu	Ser	Tyr	Tyr	Lys	Ser	Glu	
145					150					155					160	

gat	gaa	aca	gag	tat	ggc	tgc	aga	gga	tcc	atc	tgt	ctt	agc	aag	gct	528
Asp	Glu	Thr	Glu	Tyr	Gly	Cys	Arg	Gly	Ser	Ile	Cys	Leu	Ser	Lys	Ala	
				165					170					175		

gtc	atc	aca	cct	cac	gat	ttt	gat	gaa	tgt	cga	ttt	gat	att	agt	gta	576
Val	Ile	Thr	Pro	His	Asp	Phe	Asp	Glu	Cys	Arg	Phe	Asp	Ile	Ser	Val	
			180					185					190			

aat	gat	agt	gtt	tgg	tat	ctt	cgt	gct	cag	gat	cca	gat	cat	aga	cag	624
Asn	Asp	Ser	Val	Trp	Tyr	Leu	Arg	Ala	Gln	Asp	Pro	Asp	His	Arg	Gln	
		195					200					205				

03-075-US

caa Gln 210	tgg Trp 210	ata Ile	gat Asp	gcc Ala	att Ile	gaa Glu 215	cag Gln	cac His	aag Lys	act Thr	gaa Glu 220	tct Ser	gga Gly	tat Tyr	gga Gly	672
tct Ser 225	gaa Glu	tcc Ser	agc Ser	ttg Leu	cgt Arg 230	cga Arg	cat His	ggc Gly	tca Ser	atg Met 235	gtg Val	tcc Ser	ctg Leu	gtg Val	tct Ser 240	720
gga Gly	gca Ala	agt Ser	ggc Gly	tac Tyr 245	tct Ser	gca Ala	aca Thr	tcc Ser	acc Thr 250	tct Ser	tca Ser	ttc Phe	aag Lys	aaa Lys 255	ggc Gly	768
cac His	agt Ser	tta Leu	cgt Arg 260	gag Glu	aag Lys	ttg Leu	gct Ala	gaa Glu 265	atg Met	gaa Glu	aca Thr	ttt Phe	aga Arg 270	gac Asp	atc Ile	816
tta Leu	tgt Cys	aga Arg 275	caa Gln	gtt Val	gac Asp	acg Thr	cta Leu 280	cag Gln	aag Lys	tac Tyr	ttt Phe	gat Asp 285	gcc Ala	tgt Cys	gct Ala	864
gat Asp	gct Ala 290	gtc Val	tct Ser	aag Lys	gat Asp	gaa Glu 295	ctt Leu	caa Gln	agg Arg	gat Asp	aaa Lys 300	gtg Val	gta Val	gaa Glu	gat Asp	912
gat Asp 305	gaa Glu	gat Asp	gac Asp	ttt Phe	cct Pro 310	aca Thr	acg Thr	cgt Arg	tct Ser	gat Asp 315	ggt Gly	gac Asp	ttc Phe	ttg Leu	cat His 320	960
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act Thr	act Thr	gct Ala 355	gga Gly	atc Ile	ctt Leu	gca Ala	aca Thr 360	ctt Leu	tct Ser	cat His	tgt Cys	att Ile 365	gaa Glu	cta Leu	atg Met	1104
gtt Val	aaa Lys 370	cgt Arg	gag Glu	gac Asp	agc Ser	tgg Trp 375	cag Gln	aag Lys	aga Arg	ctg Leu	gat Asp 380	aag Lys	gaa Glu	act Thr	gag Glu	1152
aag Lys 385	aaa Lys	aga Arg	aga Arg	aca Thr	gag Glu 390	gaa Glu	gca Ala	tat Tyr	aaa Lys	aat Asn 395	gca Ala	atg Met	aca Thr	gaa Glu	ctt Leu 400	1200
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agt Ser	ctg Leu	att Ile	aat Asn 420	gaa Glu	gaa Glu	gag Glu	ttc Phe	ttt Phe 425	gat Asp	gct Ala	gtt Val	gaa Glu	gct Ala 430	gct Ala	ctt Leu	1296
gac Asp	aga Arg	caa Gln 435	gat Asp	aaa Lys	ata Ile	gaa Glu	gaa Glu 440	cag Gln	tca Ser	cag Gln	agt Ser	gaa Glu 445	aag Lys	gtg Val	aga Arg	1344
tta Leu	cat His 450	tgg Trp	cct Pro	aca Thr	tcc Ser	ttg Leu 455	ccc Pro	tct Ser	gga Gly	gat Asp	gcc Ala 460	ttt Phe	tct Ser	tct Ser	gtg Val	1392

03-075-US

ggg Gly 465	aca Thr	cat His	aga Arg	ttt Phe	gtc Val 470	caa Gln	aag Lys	ccc Pro	tat Tyr	agt Ser 475	cgc Arg	tct Ser	tcc Ser	tcc Ser	atg Met 480	1440
tct Ser	tcc Ser	att Ile	gat Asp	cta Leu 485	gtc Val	agt Ser	gcc Ala	tct Ser	gat Asp 490	gat Asp	gtt Val	cac His	aga Arg	ttc Phe 495	agc Ser	1488
tcc Ser	cag Gln	gtt Val	gaa Glu 500	gag Glu	atg Met	gtg Val	cag Gln	aac Asn 505	cac His	atg Met	act Thr	tac Tyr	tca Ser 510	tta Leu	cag Gln	1536
gat Asp	gta Val	ggc Gly 515	gga Gly	gat Asp	gcc Ala	aat Asn	tgg Trp 520	cag Gln	ttg Leu	gtt Val	gta Val	gaa Glu 525	gaa Glu	gga Gly	gaa Glu	1584
atg Met	aag Lys 530	gta Val	tac Tyr	aga Arg	aga Arg	gaa Glu 535	gta Val	gaa Glu	gaa Glu	aat Asn	ggg Gly 540	att Ile	gtt Val	ctg Leu	gat Asp	1632
cct Pro 545	tta Leu	aaa Lys	gct Ala	acc Thr	cat His 550	gca Ala	gtt Val	aaa Lys	ggc Gly	gtc Val 555	aca Thr	gga Gly	cat His	gaa Glu	gtc Val 560	1680
tgc Cys	aat Asn	tat Tyr	ttc Phe	tgg Trp 565	aat Asn	gtt Val	gac Asp	gtt Val	cgc Arg 570	aat Asn	gac Asp	tgg Trp	gaa Glu	aca Thr 575	act Thr	1728
ata Ile	gaa Glu	aac Asn	ttt Phe 580	cat His	gtg Val	gtg Val	gaa Glu	aca Thr 585	tta Leu	gct Ala	gat Asp	aat Asn	gca Ala 590	atc Ile	atc Ile	1776
att Ile	tat Tyr	caa Gln 595	aca Thr	cac His	aag Lys	agg Arg	gtg Val 600	tgg Trp	cct Pro	gct Ala	tct Ser	cag Gln 605	cga Arg	gac Asp	gta Val	1824
tta Leu	tat Tyr 610	ctt Leu	tct Ser	gtc Val	att Ile	cga Arg 615	aag Lys	ata Ile	cca Pro	gcc Ala	ttg Leu 620	act Thr	gaa Glu	aat Asn	gac Asp	1872
cct Pro 625	gaa Glu	act Thr	tgg Trp	ata Ile	gtt Val 630	tgt Cys	aat Asn	ttt Phe	tct Ser	gtg Val 635	gat Asp	cat His	gac Asp	agt Ser	gct Ala 640	1920
cct Pro	cta Leu	aac Asn	aac Asn	cga Arg 645	tgt Cys	gtc Val	cgt Arg	gcc Ala	aaa Lys 650	ata Ile	aat Asn	gtt Val	gct Ala	atg Met 655	att Ile	1968
tgt Cys	caa Gln	acc Thr	ttg Leu 660	gta Val	agc Ser	cca Pro	cca Pro	gag Glu 665	gga Gly	aac Asn	cag Gln	gaa Glu	att Ile 670	agc Ser	agg Arg	2016
gac Asp	aac Asn	att Ile 675	cta Leu	tgc Cys	aag Lys	att Ile	aca Thr 680	tat Tyr	gta Val	gct Ala	aat Asn	gtg Val 685	aac Asn	cct Pro	gga Gly	2064
gga Gly	tgg Trp 690	gca Ala	cca Pro	gcc Ala	tca Ser	gtg Val 695	tta Leu	agg Arg	gca Ala	gtg Val	gca Ala 700	aag Lys	cga Arg	gag Glu	tat Tyr	2112
cct Pro	aaa Lys	ttt Phe	cta Leu	aaa Lys	cgt Arg	ttt Phe	act Thr	tct Ser	tac Tyr	gtc Val	caa Gln	gaa Glu	aaa Lys	act Thr	gca Ala	2160

03-075-US
715

705

710

720

gga aag cct att ttg ttc tag
Gly Lys Pro Ile Leu Phe
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2181

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Ser Pro Leu Val Leu Leu Pro Arg Ser Ala Arg Cys Gln Ala Arg Arg
35 40 45

Arg Arg Gly Gly Arg Thr Ser Ser Leu Leu Leu Leu Pro Pro Thr Pro
50 55 60

Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg Gly
65 70 75 80

Leu Gly Ala Ser Ser Gly Ala Ala Glu Gly Ala Gly Ala Gly Leu Leu
85 90 95

Leu Gly Cys Arg Ala Ser Met Ser Asp Asn Gln Ser Trp Asn Ser Ser
100 105 110

Gly Ser Glu Glu Asp Pro Glu Thr Glu Ser Gly Pro Pro Val Glu Arg
115 120 125

Cys Gly Val Leu Ser Lys Trp Thr Asn Tyr Ile His Gly Trp Gln Asp
130 135 140

Arg Trp Val Val Leu Lys Asn Asn Ala Leu Ser Tyr Tyr Lys Ser Glu
145 150 155 160

Asp Glu Thr Glu Tyr Gly Cys Arg Gly Ser Ile Cys Leu Ser Lys Ala
165 170 175

Val Ile Thr Pro His Asp Phe Asp Glu Cys Arg Phe Asp Ile Ser Val
180 185 190

03-075-US

Asn Asp Ser Val Trp Tyr Leu Arg Ala Gln Asp Pro Asp His Arg Gln
195 200 205

Gln Trp Ile Asp Ala Ile Glu Gln His Lys Thr Glu Ser Gly Tyr Gly
210 215 220

Ser Glu Ser Ser Leu Arg Arg His Gly Ser Met Val Ser Leu Val Ser
225 230 235 240

Gly Ala Ser Gly Tyr Ser Ala Thr Ser Thr Ser Ser Phe Lys Lys Gly
245 250 255

His Ser Leu Arg Glu Lys Leu Ala Glu Met Glu Thr Phe Arg Asp Ile
260 265 270

Leu Cys Arg Gln Val Asp Thr Leu Gln Lys Tyr Phe Asp Ala Cys Ala
275 280 285

Asp Ala Val Ser Lys Asp Glu Leu Gln Arg Asp Lys Val Val Glu Asp
290 295 300

Asp Glu Asp Asp Phe Pro Thr Thr Arg Ser Asp Gly Asp Phe Leu His
305 310 315 320

Ser Thr Asn Gly Asn Lys Glu Lys Leu Phe Pro His Val Thr Pro Lys
325 330 335

Gly Ile Asn Gly Ile Asp Phe Lys Gly Glu Ala Ile Thr Phe Lys Ala
340 345 350

Thr Thr Ala Gly Ile Leu Ala Thr Leu Ser His Cys Ile Glu Leu Met
355 360 365

Val Lys Arg Glu Asp Ser Trp Gln Lys Arg Leu Asp Lys Glu Thr Glu
370 375 380

Lys Lys Arg Arg Thr Glu Glu Ala Tyr Lys Asn Ala Met Thr Glu Leu
385 390 395 400

Lys Lys Lys Ser His Phe Gly Gly Pro Asp Tyr Glu Glu Gly Pro Asn
405 410 415

Ser Leu Ile Asn Glu Glu Glu Phe Phe Asp Ala Val Glu Ala Ala Leu
420 425 430

Asp Arg Gln Asp Lys Ile Glu Glu Gln Ser Gln Ser Glu Lys Val Arg
Page 74

435

440

445

Leu His Trp Pro Thr Ser Leu Pro Ser Gly Asp Ala Phe Ser Ser Val
 450 455 460

Gly Thr His Arg Phe Val Gln Lys Pro Tyr Ser Arg Ser Ser Ser Met
 465 470 475 480

Ser Ser Ile Asp Leu Val Ser Ala Ser Asp Asp Val His Arg Phe Ser
 485 490 495

Ser Gln Val Glu Glu Met Val Gln Asn His Met Thr Tyr Ser Leu Gln
 500 505 510

Asp Val Gly Gly Asp Ala Asn Trp Gln Leu Val Val Glu Glu Gly Glu
 515 520 525

Met Lys Val Tyr Arg Arg Glu Val Glu Glu Asn Gly Ile Val Leu Asp
 530 535 540

Pro Leu Lys Ala Thr His Ala Val Lys Gly Val Thr Gly His Glu Val
 545 550 555 560

Cys Asn Tyr Phe Trp Asn Val Asp Val Arg Asn Asp Trp Glu Thr Thr
 565 570 575

Ile Glu Asn Phe His Val Val Glu Thr Leu Ala Asp Asn Ala Ile Ile
 580 585 590

Ile Tyr Gln Thr His Lys Arg Val Trp Pro Ala Ser Gln Arg Asp Val
 595 600 605

Leu Tyr Leu Ser Val Ile Arg Lys Ile Pro Ala Leu Thr Glu Asn Asp
 610 615 620

Pro Glu Thr Trp Ile Val Cys Asn Phe Ser Val Asp His Asp Ser Ala
 625 630 635 640

Pro Leu Asn Asn Arg Cys Val Arg Ala Lys Ile Asn Val Ala Met Ile
 645 650 655

Cys Gln Thr Leu Val Ser Pro Pro Glu Gly Asn Gln Glu Ile Ser Arg
 660 665 670

Asp Asn Ile Leu Cys Lys Ile Thr Tyr Val Ala Asn Val Asn Pro Gly
 675 680 685

03-075-US

Gly Trp Ala Pro Ala Ser Val Leu Arg Ala Val Ala Lys Arg Glu Tyr
690 695 700

Pro Lys Phe Leu Lys Arg Phe Thr Ser Tyr Val Gln Glu Lys Thr Ala
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Gly Lys Pro Ile Leu Phe
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Val Thr Ala Thr Ala Ala Ala Ala Asp Gly Trp Lys Gly Arg Leu Pro
20 25 30
tca ccg ctc gtc ctc ctt cct cgc tcc gct cgg tgt cag gcg cgg cgg 144
Ser Pro Leu Val Leu Leu Pro Arg Ser Ala Arg Cys Gln Ala Arg Arg
35 40 45
cgg cgc ggc ggg cgg act tcg tcc ctc ctc ctg ctc ccc ccc aca ccg 192
Arg Arg Gly Gly Arg Thr Ser Ser Leu Leu Leu Pro Pro Thr Pro
50 55 60
gag cgg gca ctc ttc gct tcg cca tcc ccc gac cct tca ccc cga gga 240
Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg Gly
65 70 75 80
ctg ggc gcc tcc tcc ggc gca gct gag gga gcg ggg gcc ggt ctc ctg 288
Leu Gly Ala Ser Ser Gly Ala Ala Glu Gly Ala Gly Ala Gly Leu Leu
85 90 95
ctc ggt tgt cga gcc tcc atg tcg gat aat cag agc tgg aac tcg tcg 336
Leu Gly Cys Arg Ala Ser Met Ser Asp Asn Gln Ser Trp Asn Ser Ser
100 105 110
ggc tcg gag gag gat cca gag acg gag tct ggg ccg cct gtg gag cgc 384
Gly Ser Glu Glu Asp Pro Glu Thr Glu Ser Gly Pro Val Glu Arg
115 120 125
tgc ggg gtc ctc agt aag tgg aca aac tac att cat ggg tgg cag gat 432
Cys Gly Val Leu Ser Lys Trp Thr Asn Tyr Ile His Gly Trp Gln Asp
130 135 140
cgt tgg gta gtt ttg aaa aat aat gct ctg agt tac tac aaa tct gaa 480
Page 76

03-075-US

Arg 145	Trp	Val	Val	Leu	Lys 150	Asn	Asn	Ala	Leu	Ser 155	Tyr	Tyr	Lys	Ser	Glu 160	
gat Asp	gaa Glu	aca Thr	gag Glu	tat Tyr 165	ggc Gly	tgc Cys	aga Arg	gga Gly	tcc Ser 170	atc Ile	tgt Cys	ctt Leu	agc Ser	aag Lys 175	gct Ala	528
gtc Val	atc Ile	aca Thr	cct Pro 180	cac His	gat Asp	ttt Phe	gat Asp	gaa Glu 185	tgt Cys	cga Arg	ttt Phe	gat Asp	att Ile 190	agt Ser	gta Val	576
aat Asn	gat Asp	agt Ser 195	gtt Val	tgg Trp	tat Tyr	ctt Leu	cgt Arg 200	gct Ala	cag Gln	gat Asp	cca Pro	gat Asp 205	cat His	aga Arg	cag Gln	624
caa Gln	tgg Trp 210	ata Ile	gat Asp	gcc Ala	att Ile	gaa Glu 215	cag Gln	cac His	aag Lys	act Thr	gaa Glu 220	tct Ser	gga Gly	tat Tyr	gga Gly	672
tct Ser 225	gaa Glu	tcc Ser	agc Ser	ttg Leu	cgt Arg 230	cga Arg	cat His	ggc Gly	tca Ser	atg Met 235	gtg Val	tcc Ser	ctg Leu	gtg Val	tct Ser 240	720
gga Gly	gca Ala	agt Ser	ggc Gly	tac Tyr 245	tct Ser	gca Ala	aca Thr	tcc Ser	acc Thr 250	tct Ser	tca Ser	ttc Phe	aag Lys	aaa Lys 255	ggc Gly	768
cac His	agt Ser	tta Leu	cgt Arg 260	gag Glu	aag Lys	ttg Leu	gct Ala	gaa Glu 265	atg Met	gaa Glu	aca Thr	ttt Phe	aga Arg 270	gac Asp	atc Ile	816
tta Leu	tgt Cys	aga Arg 275	caa Gln	gtt Val	gac Asp	acg Thr	cta Leu 280	cag Gln	aag Lys	tac Tyr	ttt Phe	gat Asp 285	gcc Ala	tgt Cys	gct Ala	864
gat Asp	gct Ala 290	gtc Val	tct Ser	aag Lys	gat Asp	gaa Glu 295	ctt Leu	caa Gln	agg Arg	gat Asp	aaa Lys 300	gtg Val	gta Val	gaa Glu	gat Asp	912
gat Asp 305	gaa Glu	gat Asp	gac Asp	ttt Phe	cct Pro 310	aca Thr	acg Thr	cgt Arg	tct Ser	gat Asp 315	ggg Gly	gac Asp	ttc Phe	ttg Leu	cat His 320	960
agt Ser	acc Thr	aac Asn	ggc Gly	aat Asn 325	aaa Lys	gaa Glu	aag Lys	tta Leu	ttt Phe 330	cca Pro	cat His	gtg Val	aca Thr	cca Pro 335	aaa Lys	1008
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aag Lys 385	aaa Lys	aga Arg	aga Arg	aca Thr	gag Glu 390	gaa Glu	gca Ala	tat Tyr	aaa Lys	aat Asn 395	gca Ala	atg Met	aca Thr	gaa Glu	ctt Leu 400	1200

03-075-US

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agt Ser	ctg Leu	att Ile	aat Asn 420	gaa Glu	gaa Glu	gag Glu	ttc Phe	ttt Phe 425	gat Asp	gct Ala	gtt Val	gaa Glu	gct Ala 430	gct Ala	ctt Leu	1296
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ggg Gly 465	aca Thr	cat His	aga Arg	ttt Phe	gtc Val 470	caa Gln	aag Lys	gtt Val	gaa Glu	gag Glu 475	atg Met	gtg Val	cag Gln	aac Asn	cac His 480	1440
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gct Ala	tct Ser	cag Gln	cga Arg 580	gac Asp	gta Val	tta Leu	tat Tyr	ctt Leu 585	tct Ser	gtc Val	att Ile	cga Arg 590	aag Lys	ata Ile	cca Pro	1776
gcc Ala	ttg Leu	act Thr 595	gaa Glu	aat Asn	gac Asp	cct Pro	gaa Glu 600	act Thr	tgg Trp	ata Ile	gtt Val	tgt Cys 605	aat Asn	ttt Phe	tct Ser	1824
gtg Val	gat Asp 610	cat His	gac Asp	agt Ser	gct Ala	cct Pro 615	cta Leu	aac Asn	aac Asn	cga Arg	tgt Cys 620	gtc Val	cgt Arg	gcc Ala	aaa Lys	1872
ata Ile 625	aat Asn	gtt Val	gct Ala	atg Met	att Ile 630	tgt Cys	caa Gln	acc Thr	ttg Leu	gta Val 635	agc Ser	cca Pro	cca Pro	gag Glu	gga Gly 640	1920
aac Asn	cag Gln	gaa Glu	att Ile	agc Ser 645	agg Arg	gac Asp	aac Asn	att Ile	cta Leu 650	tgc Cys	aag Lys	att Ile	aca Thr	tat Tyr 655	gta Val	1968

03-075-US

gct aat gtg aac cct gga gga tgg gca cca gcc tca gtg tta agg gca 2016
Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val Leu Arg Ala
660 665 670

gtg gca aag cga gag tat cct aaa ttt cta aaa cgt ttt act tct tac 2064
Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe Thr Ser Tyr
675 680 685

gtc caa gaa aaa act gca gga aag cct att ttg ttc tag 2103
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690 695 700

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Ser Pro Leu Val Leu Leu Pro Arg Ser Ala Arg Cys Gln Ala Arg Arg
35 40 45

Arg Arg Gly Gly Arg Thr Ser Ser Leu Leu Leu Leu Pro Pro Thr Pro
50 55 60

Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg Gly
65 70 75 80

Leu Gly Ala Ser Ser Gly Ala Ala Glu Gly Ala Gly Ala Gly Leu Leu
85 90 95

Leu Gly Cys Arg Ala Ser Met Ser Asp Asn Gln Ser Trp Asn Ser Ser
100 105 110

Gly Ser Glu Glu Asp Pro Glu Thr Glu Ser Gly Pro Pro Val Glu Arg
115 120 125

Cys Gly Val Leu Ser Lys Trp Thr Asn Tyr Ile His Gly Trp Gln Asp
130 135 140

Arg Trp Val Val Leu Lys Asn Asn Ala Leu Ser Tyr Tyr Lys Ser Glu
145 150 155 160

03-075-US

Asp Glu Thr Glu Tyr Gly Cys Arg Gly Ser Ile Cys Leu Ser Lys Ala
165 170 175

Val Ile Thr Pro His Asp Phe Asp Glu Cys Arg Phe Asp Ile Ser Val
180 185 190

Asn Asp Ser Val Trp Tyr Leu Arg Ala Gln Asp Pro Asp His Arg Gln
195 200 205

Gln Trp Ile Asp Ala Ile Glu Gln His Lys Thr Glu Ser Gly Tyr Gly
210 215 220

Ser Glu Ser Ser Leu Arg Arg His Gly Ser Met Val Ser Leu Val Ser
225 230 235 240

Gly Ala Ser Gly Tyr Ser Ala Thr Ser Thr Ser Ser Phe Lys Lys Gly
245 250 255

His Ser Leu Arg Glu Lys Leu Ala Glu Met Glu Thr Phe Arg Asp Ile
260 265 270

Leu Cys Arg Gln Val Asp Thr Leu Gln Lys Tyr Phe Asp Ala Cys Ala
275 280 285

Asp Ala Val Ser Lys Asp Glu Leu Gln Arg Asp Lys Val Val Glu Asp
290 295 300

Asp Glu Asp Asp Phe Pro Thr Thr Arg Ser Asp Gly Asp Phe Leu His
305 310 315 320

Ser Thr Asn Gly Asn Lys Glu Lys Leu Phe Pro His Val Thr Pro Lys
325 330 335

Gly Ile Asn Gly Ile Asp Phe Lys Gly Glu Ala Ile Thr Phe Lys Ala
340 345 350

Thr Thr Ala Gly Ile Leu Ala Thr Leu Ser His Cys Ile Glu Leu Met
355 360 365

Val Lys Arg Glu Asp Ser Trp Gln Lys Arg Leu Asp Lys Glu Thr Glu
370 375 380

Lys Lys Arg Arg Thr Glu Glu Ala Tyr Lys Asn Ala Met Thr Glu Leu
385 390 395 400

Lys Lys Lys Ser His Phe Gly Gly Pro Asp Tyr Glu Glu Gly Pro Asn
405 410 415

03-075-US

Ser Leu Ile Asn Glu Glu Glu Phe Phe Asp Ala Val Glu Ala Ala Leu
420 425 430

Asp Arg Gln Asp Lys Ile Glu Glu Gln Ser Gln Ser Glu Lys Val Arg
435 440 445

Leu His Trp Pro Thr Ser Leu Pro Ser Gly Asp Ala Phe Ser Ser Val
450 455 460

Gly Thr His Arg Phe Val Gln Lys Val Glu Glu Met Val Gln Asn His
465 470 475 480

Met Thr Tyr Ser Leu Gln Asp Val Gly Gly Asp Ala Asn Trp Gln Leu
485 490 495

Val Val Glu Glu Gly Glu Met Lys Val Tyr Arg Arg Glu Val Glu Glu
500 505 510

Asn Gly Ile Val Leu Asp Pro Leu Lys Ala Thr His Ala Val Lys Gly
515 520 525

Val Thr Gly His Glu Val Cys Asn Tyr Phe Trp Asn Val Asp Val Arg
530 535 540

Asn Asp Trp Glu Thr Thr Ile Glu Asn Phe His Val Val Glu Thr Leu
545 550 555 560

Ala Asp Asn Ala Ile Ile Ile Tyr Gln Thr His Lys Arg Val Trp Pro
565 570 575

Ala Ser Gln Arg Asp Val Leu Tyr Leu Ser Val Ile Arg Lys Ile Pro
580 585 590

Ala Leu Thr Glu Asn Asp Pro Glu Thr Trp Ile Val Cys Asn Phe Ser
595 600 605

Val Asp His Asp Ser Ala Pro Leu Asn Asn Arg Cys Val Arg Ala Lys
610 615 620

Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser Pro Pro Glu Gly
625 630 635 640

Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr Tyr Val
645 650 655

Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val Leu Arg Ala
Page 81

660

665

670

Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe Thr Ser Tyr
 675 680 685

Val Gln Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe
 690 695 700

<210> 29
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 <212> PRT
 <213> artificial

<220>
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<400> 29

Gly Ala Gly Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser
 1 5 10

<210> 30
 <211> 31
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 30

Pro Ser Pro Asp Pro Ser Pro Arg Gly Leu Gly Ala Ser Ser Gly Ala
 1 5 10 15

Ala Glu Gly Ala Gly Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser
 20 25 30

<210> 31
 <211> 54
 <212> PRT
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<220>
 <223> Derived sequence

<400> 31

Arg Arg Gly Gly Arg Thr Ser Ser Leu Leu Leu Pro Pro Thr Pro
 1 5 10 15

Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg Gly
 20 25 30

Leu Gly Ala Ser Ser Gly Ala Ala Glu Gly Ala Gly Ala Gly Leu Leu
 35 40 45

Leu Gly Cys Arg Ala Ser
50

<210> 32
<211> 78
<212> PRT
<213> artificial

<220>
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<400> 32

Asp Gly Trp Lys Gly Arg Leu Pro Ser Pro Leu Val Leu Leu Pro Arg
1 5 10 15

Ser Ala Arg Cys Gln Ala Arg Arg Arg Arg Gly Gly Arg Thr Ser Ser
20 25 30

Leu Leu Leu Leu Pro Pro Thr Pro Glu Arg Ala Leu Phe Ala Ser Pro
35 40 45

Ser Pro Asp Pro Ser Pro Arg Gly Leu Gly Ala Ser Ser Gly Ala Ala
50 55 60

Glu Gly Ala Gly Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser
65 70 75

<210> 33
<211> 102
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 33

Ala Ser Arg Gly Leu Ser Ser Gly Gly Ser Ala Gly Arg Asn Ala Gly
1 5 10 15

Val Thr Ala Thr Ala Ala Ala Ala Asp Gly Trp Lys Gly Arg Leu Pro
20 25 30

Ser Pro Leu Val Leu Leu Pro Arg Ser Ala Arg Cys Gln Ala Arg Arg
35 40 45

Arg Arg Gly Gly Arg Thr Ser Ser Leu Leu Leu Leu Pro Pro Thr Pro
50 55 60

Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg Gly
Page 83

03-075-US
75

65

70

80

Leu Gly Ala Ser Ser Gly Ala Ala Glu Gly Ala Gly Ala Gly Leu Leu
85 90 95

Leu Gly Cys Arg Ala Ser
100

<210> 34
<211> 103
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 34

Leu Ala Ser Arg Gly Leu Ser Ser Gly Gly Ser Ala Gly Arg Asn Ala
1 5 10 15

Gly Val Thr Ala Thr Ala Ala Ala Asp Gly Trp Lys Gly Arg Leu
20 25 30

Pro Ser Pro Leu Val Leu Leu Pro Arg Ser Ala Arg Cys Gln Ala Arg
35 40 45

Arg Arg Arg Gly Gly Arg Thr Ser Ser Leu Leu Leu Leu Pro Pro Thr
50 55 60

Pro Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg
65 70 75 80

Gly Leu Gly Ala Ser Ser Gly Ala Ala Glu Gly Ala Gly Ala Gly Leu
85 90 95

Leu Leu Gly Cys Arg Ala Ser
100

<210> 35
<211> 90
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 35

Leu Ala Ser Arg Gly Leu Ser Ser Gly Gly Ser Ala Gly Arg Asn Ala
1 5 10 15

03-075-US

Gly Val Thr Ala Thr Ala Ala Ala Ala Asp Gly Trp Lys Gly Arg Leu
20 25 30

Pro Ser Pro Leu Val Leu Leu Pro Arg Ser Ala Arg Cys Gln Ala Arg
35 40 45

Arg Arg Arg Gly Gly Arg Thr Ser Ser Leu Leu Leu Leu Pro Pro Thr
50 55 60

Pro Glu Arg Ala Leu Phe Ala Ser Pro Ser Pro Asp Pro Ser Pro Arg
65 70 75 80

Gly Leu Gly Ala Ser Ser Gly Ala Ala Glu
85 90

<210> 36
<211> 18
<212> PRT
<213> artificial

<220>
<223> Derived sequence
<400> 36

Pro Arg Ser Ala Arg Cys Gln Ala Arg Arg Arg Gly Gly Arg Thr
1 5 10 15

Ser Ser

<210> 37
<211> 897
<212> DNA
<213> artificial

<220>
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<221> CDS
<222> (1)..(897)
<223>

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atg tcg gat aat cag agc tgg aac tcg tcg ggc tcg gag gag gat cca 48
Met Ser Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro
1 5 10 15

gag acg gag tct ggg ccg cct gtg gag cgc tgc ggg gtc ctc agt aag 96
Glu Thr Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys
20 25 30

tgg aca aac tac att cat ggg tgg cag gat cgt tgg gta gtt ttg aaa 144
Trp Thr Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys
35 40 45

03-075-US

aat Asn	aat Asn 50	gct Ala	ctg Leu	agt Ser	tac Tyr 55	tac Tyr 55	aaa Lys	tct Ser	gaa Glu	gat Asp 60	gaa Glu	aca Thr	gag Glu	tat Tyr	ggc Gly	192
tgc Cys 65	aga Arg	gga Gly	tcc Ser	atc Ile	tgt Cys 70	ctt Leu	agc Ser	aag Lys	gct Ala	gtc Val 75	atc Ile	aca Thr	cct Pro	cac His	gat Asp 80	240
ttt Phe	gat Asp	gaa Glu	tgt Cys	cga Arg 85	ttt Phe	gat Asp	att Ile	agt Ser	gta Val 90	aat Asn	gat Asp	agt Ser	gtt Val	tgg Trp 95	tat Tyr	288
ctt Leu	cgt Arg	gct Ala	cag Gln 100	gat Asp	cca Pro	gat Asp	cat His	aga Arg 105	cag Gln	caa Gln	tgg Trp	ata Ile	gat Asp 110	gcc Ala	att Ile	336
gaa Glu	cag Gln	cac His 115	aag Lys	act Thr	gaa Glu	tct Ser	gga Gly 120	tat Tyr	gga Gly	tct Ser	gaa Glu	tcc Ser 125	agc Ser	ttg Leu	cgt Arg	384
cga Arg	cat His 130	ggc Gly	tca Ser	atg Met	gtg Val	tcc Ser 135	ctg Leu	gtg Val	tct Ser	gga Gly	gca Ala 140	agt Ser	ggc Gly	tac Tyr	tct Ser	432
gca Ala 145	aca Thr	tcc Ser	acc Thr	tct Ser	tca Ser 150	ttc Phe	aag Lys	aaa Lys	ggc Gly	cac His 155	agt Ser	tta Leu	cgt Arg	gag Glu	aag Lys 160	480
ttg Leu	gct Ala	gaa Glu	atg Met	gaa Glu 165	aca Thr	ttt Phe	aga Arg	gac Asp	atc Ile 170	tta Leu	tgt Cys	aga Arg	caa Gln	gtt Val 175	gac Asp	528
acg Thr	cta Leu	cag Gln	aag Lys 180	tac Tyr	ttt Phe	gat Asp	gcc Ala	tgt Cys 185	gct Ala	gat Asp	gct Ala	gtc Val	tct Ser 190	aag Lys	gat Asp	576
gaa Glu	ctt Leu	caa Gln 195	agg Arg	gat Asp	aaa Lys	gtg Val	gta Val 200	gaa Glu	gat Asp	gat Asp	gaa Glu	gat Asp 205	gac Asp	ttt Phe	cct Pro	624
aca Thr	acg Thr 210	cgt Arg	tct Ser	gat Asp	ggt Gly	gac Asp 215	ttc Phe	ttg Leu	cat His	agt Ser	acc Thr 220	aac Asn	ggc Gly	aat Asn	aaa Lys	672
gaa Glu 225	aag Lys	tta Leu	ttt Phe	cca Pro	cat His 230	gtg Val	aca Thr	cca Pro	aaa Lys	gga Gly 235	att Ile	aat Asn	ggt Gly	ata Ile	gac Asp 240	720
ttt Phe	aaa Lys	ggg Gly	gaa Glu	gcg Ala 245	ata Ile	act Thr	ttt Phe	aaa Lys	gca Ala 250	act Thr	act Thr	gct Ala	gga Gly	atc Ile 255	ctt Leu	768
gca Ala	aca Thr	ctt Leu	tct Ser 260	cat His	tgt Cys	att Ile	gaa Glu	cta Leu 265	atg Met	gtt Val	aaa Lys	cgt Arg	gag Glu 270	gac Asp	agc Ser	816
tgg Trp	cag Gln	aag Lys 275	aga Arg	ctg Leu	gat Asp	aag Lys	gaa Glu 280	act Thr	gag Glu	aag Lys	aaa Lys	aga Arg 285	aga Arg	aca Thr	gag Glu	864
gaa Glu	gca Ala	tat Tyr	aaa Lys	aat Asn	gca Ala	atg Met	aca Thr	gaa Glu	ctt Leu	aag Lys						897

290

295

<210> 38
 <211> 299
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 38

Met Ser Asp Asn Gln Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro
 1 5 10 15

Glu Thr Glu Ser Gly Pro Pro Val Glu Arg Cys Gly Val Leu Ser Lys
 20 25 30

Trp Thr Asn Tyr Ile His Gly Trp Gln Asp Arg Trp Val Val Leu Lys
 35 40 45

Asn Asn Ala Leu Ser Tyr Tyr Lys Ser Glu Asp Glu Thr Glu Tyr Gly
 50 55 60

Cys Arg Gly Ser Ile Cys Leu Ser Lys Ala Val Ile Thr Pro His Asp
 65 70 75 80

Phe Asp Glu Cys Arg Phe Asp Ile Ser Val Asn Asp Ser Val Trp Tyr
 85 90 95

Leu Arg Ala Gln Asp Pro Asp His Arg Gln Gln Trp Ile Asp Ala Ile
 100 105 110

Glu Gln His Lys Thr Glu Ser Gly Tyr Gly Ser Glu Ser Ser Leu Arg
 115 120 125

Arg His Gly Ser Met Val Ser Leu Val Ser Gly Ala Ser Gly Tyr Ser
 130 135 140

Ala Thr Ser Thr Ser Ser Phe Lys Lys Gly His Ser Leu Arg Glu Lys
 145 150 155 160

Leu Ala Glu Met Glu Thr Phe Arg Asp Ile Leu Cys Arg Gln Val Asp
 165 170 175

Thr Leu Gln Lys Tyr Phe Asp Ala Cys Ala Asp Ala Val Ser Lys Asp
 180 185 190

Glu Leu Gln Arg Asp Lys Val Val Glu Asp Asp Glu Asp Asp Phe Pro
 195 200 205

03-075-US

Thr Thr Arg Ser Asp Gly Asp Phe Leu His Ser Thr Asn Gly Asn Lys
210 215 220

Glu Lys Leu Phe Pro His Val Thr Pro Lys Gly Ile Asn Gly Ile Asp
225 230 235 240

Phe Lys Gly Glu Ala Ile Thr Phe Lys Ala Thr Thr Ala Gly Ile Leu
245 250 255

Ala Thr Leu Ser His Cys Ile Glu Leu Met Val Lys Arg Glu Asp Ser
260 265 270

Trp Gln Lys Arg Leu Asp Lys Glu Thr Glu Lys Lys Arg Arg Thr Glu
275 280 285

Glu Ala Tyr Lys Asn Ala Met Thr Glu Leu Lys
290 295

<210> 39
<211> 5
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 39

Ser His Cys Ile Glu
1 5

<210> 40
<211> 5
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 40

Ser His Cys Ile Gln
1 5

<210> 41
<211> 10
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 41

Ala Thr Thr Ala Gly Ile Leu Ala Thr Leu
 1 5 10

<210> 42
 <211> 10
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 42

Leu Met Val Lys Arg Glu Asp Ser Trp Gln
 1 5 10

<210> 43
 <211> 15
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 43

Ile Leu Ala Thr Leu Ser His Cys Ile Glu Leu Met Val Lys Arg
 1 5 10 15

<210> 44
 <211> 15
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 44

Ile Leu Ala Thr Leu Ser His Cys Ile Gln Leu Met Val Lys Arg
 1 5 10 15

<210> 45
 <211> 10
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 45

Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe
 1 5 10

<210> 46
 <211> 26

<212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 46

Pro Tyr Ser Arg Ser Ser Ser Met Ser Ser Ile Asp Leu Val Ser Ala
 1 5 10 15

Ser Asp Asp Val His Arg Phe Ser Ser Gln
 20 25

<210> 47
 <211> 21
 <212> RNA
 <213> artificial

<220>
 <223> Derived sequence

<400> 47
 aaacuacauu cauggguggc a 21

<210> 48
 <211> 21
 <212> RNA
 <213> artificial

<220>
 <223> Derived sequence

<400> 48
 aaacagagua uggcugcaga g 21

<210> 49
 <211> 21
 <212> RNA
 <213> artificial

<220>
 <223> Derived sequence

<400> 49
 aaguacuuug augccugugc u 21

<210> 50
 <211> 21
 <212> RNA
 <213> artificial

<220>
 <223> Derived sequence

<400> 50
 aaaggcguca caggacauga a 21

<210> 51
 <211> 21
 <212> RNA
 <213> artificial

<220>
 <223> Derived sequence

<400> 51
 aagcccuaua gucgucuuc c

21

<210> 52
 <211> 244
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 52

Gly Leu Lys Gly Lys Arg Gly Asp Ser Gly Ser Pro Ala Thr Trp Thr
 1 5 10 15

Thr Arg Gly Phe Val Phe Thr Arg His Ser Gln Thr Thr Ala Ile Pro
 20 25 30

Ser Cys Pro Glu Gly Thr Val Pro Leu Tyr Ser Gly Phe Ser Phe Leu
 35 40 45

Phe Val Gln Gly Asn Gln Arg Ala His Gly Gln Asp Leu Gly Thr Leu
 50 55 60

Gly Ser Cys Leu Gln Arg Phe Thr Thr Met Pro Phe Leu Phe Cys Asn
 65 70 75 80

Val Asn Asp Val Cys Asn Phe Ala Ser Arg Asn Asp Tyr Ser Tyr Trp
 85 90 95

Leu Ser Thr Pro Ala Leu Met Pro Met Asn Met Ala Pro Ile Thr Gly
 100 105 110

Arg Ala Leu Glu Pro Tyr Ile Ser Arg Cys Thr Val Cys Glu Gly Pro
 115 120 125

Ala Ile Ala Ile Ala Val His Ser Gln Thr Thr Asp Ile Pro Pro Cys
 130 135 140

Pro His Gly Trp Ile Ser Leu Trp Lys Gly Phe Ser Phe Ile Met Phe
 145 150 155 160

03-075-US

Thr Ser Ala Gly Ser Glu Gly Thr Gly Gln Ala Leu Ala Ser Pro Gly
165 170 175

Ser Cys Leu Glu Glu Phe Arg Ala Ser Pro Phe Leu Glu Cys His Gly
180 185 190

Arg Gly Thr Cys Asn Tyr Tyr Ser Asn Ser Tyr Ser Phe Trp Leu Ala
195 200 205

Ser Leu Asn Pro Glu Arg Met Phe Arg Lys Pro Ile Pro Ser Thr Val
210 215 220

Lys Ala Gly Glu Leu Glu Lys Ile Ile Ser Arg Cys Gln Val Cys Met
225 230 235 240

Lys Lys Arg His

<210> 53
<211> 197
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 53

Met Ala Ser Gln Lys Arg Pro Ser Gln Arg His Gly Ser Lys Tyr Leu
1 5 10 15

Ala Thr Ala Ser Thr Met Asp His Ala Arg His Gly Phe Leu Pro Arg
20 25 30

His Arg Asp Thr Gly Ile Leu Asp Ser Ile Gly Arg Phe Phe Gly Gly
35 40 45

Asp Arg Gly Ala Pro Lys Arg Gly Ser Gly Lys Val Pro Trp Leu Lys
50 55 60

Pro Gly Arg Ser Pro Leu Pro Ser His Ala Arg Ser Gln Pro Gly Leu
65 70 75 80

Cys Asn Met Tyr Lys Asp Ser His His Pro Ala Arg Thr Ala His Tyr
85 90 95

Gly Ser Leu Pro Gln Lys Ser His Gly Arg Thr Gln Asp Glu Asn Pro
100 105 110

Val Val His Phe Phe Lys Asn Ile Val Thr Pro Arg Thr Pro Pro Pro
Page 92

115

120

125

Ser Gln Gly Lys Gly Arg Gly Leu Ser Leu Ser Arg Phe Ser Trp Gly
 130 135 140

Ala Glu Gly Gln Arg Pro Gly Phe Gly Tyr Gly Gly Arg Ala Ser Asp
 145 150 155 160

Tyr Lys Ser Ala His Lys Gly Phe Lys Gly Val Asp Ala Gln Gly Thr
 165 170 175

Leu Ser Lys Ile Phe Lys Leu Gly Gly Arg Asp Ser Arg Ser Gly Ser
 180 185 190

Pro Met Ala Arg Arg
 195

<210> 54
 <211> 253
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 54

Met Ala Asn Leu Gly Cys Trp Met Leu Val Leu Phe Val Ala Thr Trp
 1 5 10 15

Ser Asp Leu Gly Leu Cys Lys Lys Arg Pro Lys Pro Gly Gly Trp Asn
 20 25 30

Thr Gly Gly Ser Arg Tyr Pro Gly Gln Gly Ser Pro Gly Gly Asn Arg
 35 40 45

Tyr Pro Pro Gln Gly Gly Gly Gly Trp Gly Gln Pro His Gly Gly Gly
 50 55 60

Trp Gly Gln Pro His Gly Gly Gly Trp Gly Gln Pro His Gly Gly Gly
 65 70 75 80

Trp Gly Gln Pro His Gly Gly Gly Trp Gly Gln Gly Gly Gly Thr His
 85 90 95

Ser Gln Trp Asn Lys Pro Ser Lys Pro Lys Thr Asn Met Lys His Met
 100 105 110

Ala Gly Ala Ala Ala Ala Gly Ala Val Val Gly Gly Leu Gly Gly Tyr
 115 120 125

03-075-US

Met Leu Gly Ser Ala Met Ser Arg Pro Ile Ile His Phe Gly Ser Asp
130 135 140

Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn Met His Arg Tyr Pro Asn Gln
145 150 155 160

Val Tyr Tyr Arg Pro Met Asp Glu Tyr Ser Asn Gln Asn Asn Phe Val
165 170 175

His Asp Cys Val Asn Ile Thr Ile Lys Gln His Thr Val Thr Thr Thr
180 185 190

Thr Lys Gly Glu Asn Phe Thr Glu Thr Asp Val Lys Met Met Glu Arg
195 200 205

Val Val Glu Gln Met Cys Ile Thr Gln Tyr Glu Arg Glu Ser Gln Ala
210 215 220

Tyr Tyr Gln Arg Gly Ser Ser Met Val Leu Phe Ser Ser Pro Pro Val
225 230 235 240

Ile Leu Leu Ile Ser Phe Leu Ile Phe Leu Ile Val Gly
245 250

<210> 55
<211> 42
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 55

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
20 25 30

Gly Leu Met Val Gly Gly Val Val Ile Ala
35 40

<210> 56
<211> 244
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 56

Gly Leu Lys Gly Lys Arg Gly Asp Ala Gly Ser Pro Ala Thr Trp Thr
 1 5 10 15
 Thr Arg Gly Phe Val Phe Thr Arg His Ser Gln Thr Thr Ala Ile Pro
 20 25 30
 Ser Cys Pro Glu Gly Thr Val Pro Leu Tyr Ser Gly Phe Ser Phe Leu
 35 40 45
 Phe Val Gln Gly Asn Gln Arg Ala His Gly Gln Asp Leu Gly Thr Leu
 50 55 60
 Gly Ser Cys Leu Gln Arg Phe Thr Thr Met Pro Phe Leu Phe Cys Asn
 65 70 75 80
 Val Asn Asp Val Cys Asn Phe Ala Ser Arg Asn Asp Tyr Ser Tyr Trp
 85 90 95
 Leu Ser Thr Pro Ala Leu Met Pro Met Asn Met Ala Pro Ile Thr Gly
 100 105 110
 Arg Ala Leu Glu Pro Tyr Ile Ser Arg Cys Thr Val Cys Glu Gly Pro
 115 120 125
 Ala Ile Ala Ile Ala Val His Ser Gln Thr Thr Asp Ile Pro Pro Cys
 130 135 140
 Pro His Gly Trp Ile Ser Leu Trp Lys Gly Phe Ser Phe Ile Met Phe
 145 150 155 160
 Thr Ser Ala Gly Ser Glu Gly Thr Gly Gln Ala Leu Ala Ser Pro Gly
 165 170 175
 Ser Cys Leu Glu Glu Phe Arg Ala Ser Pro Phe Leu Glu Cys His Gly
 180 185 190
 Arg Gly Thr Cys Asn Tyr Tyr Ser Asn Ser Tyr Ser Phe Trp Leu Ala
 195 200 205
 Ser Leu Asn Pro Glu Arg Met Phe Arg Lys Pro Ile Pro Ser Thr Val
 210 215 220
 Lys Ala Gly Glu Leu Glu Lys Ile Ile Ser Arg Cys Gln Val Cys Met
 225 230 235 240

Lys Lys Arg His

<210> 57
 <211> 244
 <212> PRT
 <213> artificial

<220>
 <223> Derived sequence

<400> 57

Gly Leu Lys Gly Lys Arg Gly Asp Asp Gly Ser Pro Ala Thr Trp Thr
 1 5 10 15

Thr Arg Gly Phe Val Phe Thr Arg His Ser Gln Thr Thr Ala Ile Pro
 20 25 30

Ser Cys Pro Glu Gly Thr Val Pro Leu Tyr Ser Gly Phe Ser Phe Leu
 35 40 45

Phe Val Gln Gly Asn Gln Arg Ala His Gly Gln Asp Leu Gly Thr Leu
 50 55 60

Gly Ser Cys Leu Gln Arg Phe Thr Thr Met Pro Phe Leu Phe Cys Asn
 65 70 75 80

Val Asn Asp Val Cys Asn Phe Ala Ser Arg Asn Asp Tyr Ser Tyr Trp
 85 90 95

Leu Ser Thr Pro Ala Leu Met Pro Met Asn Met Ala Pro Ile Thr Gly
 100 105 110

Arg Ala Leu Glu Pro Tyr Ile Ser Arg Cys Thr Val Cys Glu Gly Pro
 115 120 125

Ala Ile Ala Ile Ala Val His Ser Gln Thr Thr Asp Ile Pro Pro Cys
 130 135 140

Pro His Gly Trp Ile Ser Leu Trp Lys Gly Phe Ser Phe Ile Met Phe
 145 150 155 160

Thr Ser Ala Gly Ser Glu Gly Thr Gly Gln Ala Leu Ala Ser Pro Gly
 165 170 175

Ser Cys Leu Glu Glu Phe Arg Ala Ser Pro Phe Leu Glu Cys His Gly
 180 185 190

Arg Gly Thr Cys Asn Tyr Tyr Ser Asn Ser Tyr Ser Phe Trp Leu Ala
 Page 96

195

200

205

Ser Leu Asn Pro Glu Arg Met Phe Arg Lys Pro Ile Pro Ser Thr Val
 210 215 220

Lys Ala Gly Glu Leu Glu Lys Ile Ile Ser Arg Cys Gln Val Cys Met
 225 230 235 240

Lys Lys Arg His

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 <213> artificial

<220>
 <223> ON-hmbGPBP

<400> 58
 cctccgagcc cgacgagttc

20

<210> 59
 <211> 20
 <212> DNA
 <213> artificial

<220>
 <223> ON-dinb1

<400> 59
 gaccgaaagg ggcacgcaac

20

<210> 60
 <211> 33
 <212> DNA
 <213> artificial

<220>
 <223> ON-GPBP D102

<400> 60
 aaaaagaatt cgcatcgagg gggctaagtt cgg

33

<210> 61
 <211> 31
 <212> DNA
 <213> artificial

<220>
 <223> ON-GPBP D174

<400> 61
 aaaaagaatt cgacggctgg aagggtaggc t

31

<210> 62
 <211> 32
 <212> DNA
 <213> artificial

<220>
 <223> ON-GPBP D246

<400> 62
 aaaaagaatt ctgtcaggcg cggcggcggc gc

32

<210> 63
 <211> 30
 <212> DNA
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<220>
 <223> ON-GPBP D315

<400> 63
 gacgaattcc catccccga cccttcaccc

30

<210> 64
 <211> 33
 <212> DNA
 <213> artificial

<220>
 <223> ON-GPBP D369

<400> 64
 aaaaagaatt cggagcgggg gccggtctcc tgc

33

<210> 65
 <211> 20
 <212> DNA
 <213> artificial

<220>
 <223> ON-pU1

<400> 65
 acgactcact atagggagac

20

<210> 66
 <211> 20
 <212> DNA
 <213> artificial

<220>
 <223> ON-pcDNAC

<400> 66
 ctctagcatt taggtgacac

20

<210> 67
 <211> 33
 <212> DNA

<213> artificial

<220>

<223> ON-GPBPMet (mutant)

<400> 67

ggttgtcgag cctccggatc ggataatcag agc

33

<210> 68

<211> 30

<212> DNA

<213> artificial

<220>

<223> ON-PrP-F3

<400> 68

gagaattcag cagtcattat ggcgaacctt

30

<210> 69

<211> 31

<212> DNA

<213> artificial

<220>

<223> ON- PrP-R1

<400> 69

gaactcgagc cttcctcatc ccactatcag g

31

<210> 70

<211> 25

<212> DNA

<213> artificial

<220>

<223> ON-E/K-PrP-F6

<400> 70

tatcaccag tacaagaggg aatct

25

<210> 71

<211> 25

<212> DNA

<213> artificial

<220>

<223> ON-E/K-PrP-R6

<400> 71

agattccctc ttgtactggg tgata

25

<210> 72

<211> 22

<212> DNA

<213> artificial

<220>

<223> ON-E168R-F1

<400> 72

cccatggata ggtacagcaa cc

22

<210> 73

<211> 22

<212> DNA

<213> artificial

<220>

<223> ON-E168R-R1

<400> 73

ggttgctgta cctatccatg gg

22

<210> 74

<211> 25

<212> DNA

<213> artificial

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<223> ON-Q172R-F1

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gagtacagca acaggaacaa ctttg

25

<210> 75

<211> 25

<212> DNA

<213> artificial

<220>

<223> ON-Q172R-R1

<400> 75

caaagttggt cctggtgctg tactc

25

<210> 76

<211> 22

<212> DNA

<213> artificial

<220>

<223> ON-R220A-F1

<400> 76

cagtacgagg cggaatctca gg

22

<210> 77

<211> 22

<212> DNA

<213> artificial

<220>

<223> ON-R220A-R1

<400> 77

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<210> 78		
<211> 23		
<212> DNA		
<213> artificial		
<220>		
<223> ON-R228A-F1		
<400> 78		
tattaccagg caggatcgag cat		23
<210> 79		
<211> 23		
<212> DNA		
<213> artificial		
<220>		
<223> ON-R228A-R1		
<400> 79		
atgctcgatc ctgcctggta ata		23
<210> 80		
<211> 64		
<212> DNA		
<213> artificial		
<220>		
<223> SiGPBP/D26-1		
<400> 80		
gatcccacta cattcatggg tggcattcaa gagatgccac ccatgaatgt agtttttttg		60
gaaa		64
<210> 81		
<211> 64		
<212> DNA		
<213> artificial		
<220>		
<223> SiGPBP/D26-1		
<400> 81		
agctttttcca aaaaaactac attcatgggt ggcattcttt gaatgccacc catgaatgta		60
gtgg		64
<210> 82		
<211> 64		
<212> DNA		
<213> artificial		
<220>		
<223> SiGPBP/D26-2		

03-075-US

<400> 82
 gatccacag agtatggctg cagagttcaa gagactctgc agccatactc tgtttttttg 60
 gaaa 64

<210> 83
 <211> 64
 <212> DNA
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 Ala Gly Arg Ser Ala Gly Val Thr Ala Thr Ala Ala Asp Gly Trp Lys
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 Gly Arg Leu Ser Ser Pro Leu Val Leu Leu Pro Arg Ser Ala Arg Cys
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 Gln Ala Arg Arg Arg Arg Arg Gly Gly Arg Ala Ser Ser Leu Phe Leu
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 Phe Pro His Ser Pro Glu Arg Ala Leu Leu Ala Val Pro Ser Pro Asp
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03-075-US

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03-075-US

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03-075-US

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 Page 107

20

25

30

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Arg Arg Gly Gly Arg Ala Ser₅₅ Ser Leu Phe Leu₆₀ Phe Pro His Ser Pro

Glu Arg Ala Leu Leu Ala₇₀ Val Pro Ser Pro Asp₇₅ Pro Ser Pro Gln Gly₈₀

Leu Gly Ala Cys Thr₈₅ Gly Ala Ala Arg Gly₉₀ Ala Gly Ala Gly Leu₉₅ Leu

Leu Gly Cys Arg₁₀₀ Val Ser Met Ser₁₀₅ Asn Gln Ser Trp Asn₁₁₀ Ser Ser

Gly Ser Glu₁₁₅ Glu Asp Pro Glu Thr₁₂₀ Glu Ser Gly Pro₁₂₅ Pro Val Glu Arg

Cys Gly Val₁₃₀ Leu Ser Lys Trp₁₃₅ Thr Asn Tyr Ile His Gly Trp Gln Asp

Arg Trp Val Val₁₄₅ Leu Lys₁₅₀ Asn Asn Thr Leu Ser₁₅₅ Tyr Tyr Lys Ser Glu₁₆₀

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Val Ile Thr Pro₁₈₀ His Asp Phe Asp Glu₁₈₅ Cys Arg Phe Asp Ile₁₉₀ Ser Val

Asn Asp Ser₁₉₅ Val Trp Tyr Leu Arg₂₀₀ Ala Gln Asp Pro Glu₂₀₅ His Arg Gln

Gln Trp Val Asp Ala Ile Glu₂₁₅ Gln His Lys Thr Glu₂₂₀ Ser Gly Tyr Gly

Ser Glu Ser Ser Leu Arg₂₃₀ Arg His Gly Ser Met₂₃₅ Val Ser Leu Val Ser₂₄₀

Gly Ala Ser Gly Tyr₂₄₅ Ser Ala Thr Ser Thr₂₅₀ Ser Ser Phe Lys Lys₂₅₅ Gly

His Ser Leu Arg₂₆₀ Glu Lys Leu Ala Glu₂₆₅ Met Glu Thr Phe Arg₂₇₀ Asp Ile

03-075-US

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Asp Glu Asp Asp Phe Pro Thr Thr Arg Ser Asp Gly Asp Phe Leu His
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Asn Thr Asn Gly Asn Lys Glu Lys Leu Phe Pro His Val Thr Pro Lys
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Gly Thr His Arg Phe Val Gln Lys Pro Tyr Ser Arg Ser Ser Ser Met
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Ser Ser Ile Asp Leu Val Ser Ala Ser Asp Asp Val His Arg Phe Ser
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Asp Val Gly Gly Asp Ala Asn Trp Gln Leu Val Val Glu Glu Gly Glu
 515 520 525

03-075-US

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Pro Leu Lys Ala Thr His Ala Val Lys Gly Val Thr Gly His Glu Val
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565 570 575

Ile Glu Asn Phe His Val Val Glu Thr Leu Ala Asp Asn Ala Ile Ile
580 585 590

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03-075-US

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Gln Ala Arg Arg Arg Arg Arg Gly Gly Arg Ala Ser Ser Leu Phe Leu
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Phe Pro His Ser Pro Glu Arg Ala Leu Leu Ala Val Pro Ser Pro Asp
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Ser Trp Asn Ser Ser Gly Ser Glu Glu Asp Pro Glu Thr Glu Ser Gly
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tac tac aaa tct gaa gat gaa aca gaa tat ggc tgt agg gga tcc atc      650
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03-075-US																
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Lys	Arg	Val	Trp	Pro	Ala	Ser	Gln	Arg	Asp	Val	Leu	Tyr	Leu	Ser	Ala	
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Ile	Arg	Lys	Ile	Pro	Ala	Leu	Thr	Glu	Asn	Asp	Pro	Glu	Thr	Trp	Ile	
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Ser	Pro	Pro	Glu	Gly	Asp	Gln	Glu	Ile	Ser	Arg	Asp	Asn	Ile	Leu	Cys	
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Lys	Ile	Thr	Tyr	Val	Ala	Asn	Val	Asn	Pro	Gly	Gly	Trp	Ala	Pro	Ala	
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tcg	gtc	tta	aga	gca	gtg	gca	aag	cga	gaa	tac	cct	aag	ttt	cta	aaa	2186
Ser	Val	Leu	Arg	Ala	Val	Ala	Lys	Arg	Glu	Tyr	Pro	Lys	Phe	Leu	Lys	
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Phe																
700																
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03-075-US

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Val Ile Thr Pro His Asp Phe Asp Glu Cys Arg Phe Asp Ile Ser Val
 Page 114

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Lys	Lys	Lys	Pro	Arg	Phe	Gly	Gly	Pro	Asp	Tyr	Glu	Glu	Gly	Pro	Asn
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03-075-US

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 Ala Asp Asn Ala Ile Ile Val Tyr Gln Thr His Lys Arg Val Trp Pro
 565 570 575
 Ala Ser Gln Arg Asp Val Leu Tyr Leu Ser Ala Ile Arg Lys Ile Pro
 580 585 590
 Ala Leu Thr Glu Asn Asp Pro Glu Thr Trp Ile Val Cys Asn Phe Ser
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 Val Asp His Asp Ser Ala Pro Leu Asn Asn Arg Cys Val Arg Ala Lys
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 Ile Asn Ile Ala Met Ile Cys Gln Thr Leu Val Ser Pro Pro Glu Gly
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 Asp Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr Tyr Val
 645 650 655
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03-075-US

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Gly Pro Asn Ser Gly Gly Gly Ala Gly Arg Ser Ala Gly Val Thr Thr
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acg gcg acg gct gac ggt tgg aag ggc agg ctt cct tcg ccc ctc gac 210
Thr Ala Thr Ala Asp Gly Trp Lys Gly Arg Leu Pro Ser Pro Leu Asp
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Leu Leu Pro Arg Ser Ala Trp Cys Gln Ala Arg Arg Arg Arg Arg Arg
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cgg cgc ggc ggg cgg act cca tcc ctc ctc ccg ctc cct cct gca ccg 306
Arg Arg Gly Gly Arg Thr Pro Ser Leu Leu Pro Leu Pro Pro Ala Pro
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Cys Gly Val Leu Ser Lys Trp Thr Asn Tyr Ile His Gly Trp Gln Asp
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Arg Trp Val Val Leu Lys Asn Asn Thr Leu Ser Tyr Tyr Lys Ser Glu
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03-075-US																
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cag Gln	tgg Trp	ata Ile 215	gat Asp	gcc Ala	att Ile	gaa Glu	cag Gln 220	cac His	aag Lys	act Thr	gaa Glu	tct Ser 225	gga Gly	tat Tyr	gga Gly	786
tct Ser	gaa Glu 230	tcc Ser	agc Ser	ttg Leu	cgt Arg	cga Arg 235	cat His	ggc Gly	tcc Ser	atg Met	gta Val 240	tca Ser	ttg Leu	gta Val	tcc Ser	834
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gat Asp	gct Ala	gtc Val 295	tcc Ser	aag Lys	gat Asp	gaa Glu	ttt Phe 300	caa Gln	agg Arg	gat Asp	aaa Lys	gtg Val 305	gta Val	gaa Glu	gat Asp	1026
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aag Lys 405	aaa Lys	aaa Lys	tcc Ser	cac His	ttt Phe 410	gga Gly	gga Gly	cca Pro	gat Asp	tat Tyr 415	gag Glu	gaa Glu	ggc Gly	cca Pro	aac Asn 420	1362

03-075-US

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Ser Leu Ile Asn Glu Glu Glu Phe Phe Asp Ala Val Glu Ala Ala Leu	
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Asp Arg Gln Asp Lys Ile Glu Glu Gln Ser Gln Ser Glu Lys Val Arg	
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tta cat tgg tct act tca atg cca tct gga gat gcc ttt tct tct gtg	1506
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03-075-US

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03-075-US

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 Ser Leu Val Ser Gly Ala Ser Gly Tyr Ser Ala Thr Ser Thr Ser Ser
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03-075-US

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610 615 620

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03-075-US

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03-075-US

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Gly	Ser	Glu	Glu	Asp	Pro	Glu	Thr	Glu	Ser	Gly	Pro	Pro	Val	Glu	Arg	
			120					125					130			
tgc	gga	gtc	ctc	agc	aag	tgg	aca	aac	tat	att	cat	ggg	tgg	cag	gat	546
Cys	Gly	Val	Leu	Ser	Lys	Trp	Thr	Asn	Tyr	Ile	His	Gly	Trp	Gln	Asp	
		135					140					145				
cgc	tgg	gta	gtt	ttg	aaa	aat	aac	act	ctg	agt	tac	tac	aaa	tct	gaa	594
Arg	Trp	Val	Val	Leu	Lys	Asn	Asn	Thr	Leu	Ser	Tyr	Tyr	Lys	Ser	Glu	
	150					155					160					
gat	gag	aca	gag	tat	ggc	tgc	aga	gga	tcc	atc	tgt	ctt	agc	aag	gct	642
Asp	Glu	Thr	Glu	Tyr	Gly	Cys	Arg	Gly	Ser	Ile	Cys	Leu	Ser	Lys	Ala	
165					170					175					180	
gtc	atc	acg	cct	cat	gat	ttt	gat	gaa	tgc	cga	ttt	gat	att	agt	gta	690
Val	Ile	Thr	Pro	His	Asp	Phe	Asp	Glu	Cys	Arg	Phe	Asp	Ile	Ser	Val	
				185					190					195		
aat	gat	agt	gtt	tgg	tat	ctt	cgt	gct	caa	gat	cca	gat	cac	aga	cag	738
Asn	Asp	Ser	Val	Trp	Tyr	Leu	Arg	Ala	Gln	Asp	Pro	Asp	His	Arg	Gln	
			200					205					210			
cag	tgg	ata	gat	gcc	att	gaa	cag	cac	aag	act	gaa	tct	gga	tat	gga	786
Gln	Trp	Ile	Asp	Ala	Ile	Glu	Gln	His	Lys	Thr	Glu	Ser	Gly	Tyr	Gly	
		215					220					225				
tct	gaa	tcc	agc	ttg	cgt	cga	cat	ggc	tcc	atg	gta	tca	ttg	gta	tcc	834
Ser	Glu	Ser	Ser	Leu	Arg	Arg	His	Gly	Ser	Met	Val	Ser	Leu	Val	Ser	
	230					235					240					
gga	gca	agt	ggc	tat	tct	gca	aca	tcc	acc	tcc	tca	ttc	aag	aag	ggc	882
Gly	Ala	Ser	Gly	Tyr	Ser	Ala	Thr	Ser	Thr	Ser	Ser	Phe	Lys	Lys	Gly	
245				250					255						260	
cac	agt	tta	cgt	gag	aaa	ctg	gct	gaa	atg	gaa	acc	ttt	aga	gat	ata	930
His	Ser	Leu	Arg	Glu	Lys	Leu	Ala	Glu	Met	Glu	Thr	Phe	Arg	Asp	Ile	
				265					270					275		
ctg	tgt	aga	caa	gtt	gat	acc	cta	cag	aag	ttc	ttt	gat	gcc	tgt	gct	978
Leu	Cys	Arg	Gln	Val	Asp	Thr	Leu	Gln	Lys	Phe	Phe	Asp	Ala	Cys	Ala	
			280					285					290			
gat	gct	gtc	tcc	aag	gat	gaa	ttt	caa	agg	gat	aaa	gtg	gta	gaa	gat	1026
Asp	Ala	Val	Ser	Lys	Asp	Glu	Phe	Gln	Arg	Asp	Lys	Val	Val	Glu	Asp	
		295					300					305				
gat	gaa	gat	gac	ttt	cct	acg	aca	cgt	tct	gat	gga	gac	ttc	ttg	cat	1074
Asp	Glu	Asp	Asp	Phe	Pro	Thr	Thr	Arg	Ser	Asp	Gly	Asp	Phe	Leu	His	
	310					315					320					
aat	acc	aat	ggc	aat	aag	gaa	aag	gta	ttt	cca	cat	gta	aca	cca	aaa	1122
Asn	Thr	Asn	Gly	Asn	Lys	Glu	Lys	Val	Phe	Pro	His	Val	Thr	Pro	Lys	
325					330					335					340	
gga	att	aat	ggt	ata	gac	ttt	aaa	ggt	gag	gcg	ata	act	ttt	aaa	gca	1170
Gly	Ile	Asn	Gly	Ile	Asp	Phe	Lys	Gly	Glu	Ala	Ile	Thr	Phe	Lys	Ala	
				345					350					355		

03-075-US

act Thr	act Thr	gcc Ala	gga Gly 360	atc Ile	ctt Leu	gct Ala	aca Thr	ctt Leu 365	tct Ser	cat His	tgt Cys	att Ile	gag Glu 370	ctg Leu	atg Met	1218
gta Val	aaa Lys	cgt Arg 375	gag Glu	gac Asp	agc Ser	tgg Trp	caa Gln 380	aag Lys	aga Arg	atg Met	gac Asp	aag Lys 385	gaa Glu	act Thr	gag Glu	1266
aag Lys	aga Arg 390	aga Arg	aga Arg	gtg Val	gag Glu	gaa Glu 395	gca Ala	tac Tyr	aaa Lys	aat Asn	gcc Ala 400	atg Met	aca Thr	gaa Glu	ctt Leu	1314
aag Lys 405	aaa Lys	aaa Lys	tcc Ser	cac His	ttt Phe 410	gga Gly	gga Gly	cca Pro	gat Asp	tat Tyr 415	gag Glu	gaa Glu	ggc Gly	cca Pro	aac Asn 420	1362
agt Ser	ttg Leu	att Ile	aat Asn	gaa Glu 425	gag Glu	gag Glu	ttc Phe	ttt Phe	gat Asp 430	gct Ala	gtt Val	gaa Glu	gct Ala	gct Ala 435	ctt Leu	1410
gac Asp	aga Arg	caa Gln 440	gat Asp	aaa Lys	ata Ile	gaa Glu	gaa Glu	cag Gln 445	tcg Ser	cag Gln	agt Ser	gaa Glu	aag Lys 450	gtc Val	agg Arg	1458
tta Leu	cat His	tgg Trp 455	tct Ser	act Thr	tca Ser	atg Met	cca Pro 460	tct Ser	gga Gly	gat Asp	gcc Ala	ttt Phe 465	tct Ser	tct Ser	gtg Val	1506
ggg Gly 470	act Thr	cat His	aga Arg	ttt Phe	gtc Val	caa Gln 475	aag Lys	gtt Val	gaa Glu	gag Glu	atg Met 480	gtg Val	cag Gln	aac Asn	cac His	1554
atg Met 485	acc Thr	tat Tyr	tca Ser	ttg Leu	cag Gln 490	gat Asp	gta Val	ggt Gly	ggg Gly	gac Asp 495	gcc Ala	aac Asn	tgg Trp	cag Gln	ttg Leu 500	1602
gtt Val	gta Val	gaa Glu	gaa Glu	ggg Gly 505	gag Glu	atg Met	aag Lys	gta Val	tat Tyr 510	aga Arg	aga Arg	gaa Glu	gta Val	gaa Glu 515	gaa Glu	1650
aat Asn	ggg Gly	att Ile	gtt Val 520	ctg Leu	gat Asp	cct Pro	ttg Leu	aaa Lys 525	gct Ala	acc Thr	cat His	gca Ala 530	gtt Val 530	aaa Lys	ggc Gly	1698
gtt Val	aca Thr	gga Gly 535	cac His	gag Glu	gtc Val	tgc Cys	aat Asn 540	tac Tyr	ttc Phe	tgg Trp	aat Asn 545	gtt Val 545	gat Asp	gtt Val	cgc Arg	1746
aat Asn	gat Asp 550	tgg Trp	gaa Glu	aca Thr	act Thr	ata Ile 555	gaa Glu	aac Asn	ttt Phe	cat His	gtg Val 560	gtg Val	gaa Glu	aca Thr	tta Leu	1794
gct Ala 565	gat Asp	aat Asn	gca Ala	atc Ile	atc Ile 570	att Ile	tat Tyr	caa Gln	acg Thr	cac His 575	aag Lys	aga Arg	gtg Val	tgg Trp	cca Pro 580	1842
gcc Ala	tct Ser	cag Gln	cgg Arg	gat Asp 585	gtc Val	tta Leu	tat Tyr	ctg Leu	tct Ser 590	gcc Ala	att Ile	cga Arg	aag Lys	ata Ile 595	cca Pro	1890
gct Ala	ttg Leu	aat Asn	gaa Glu	aat Asn	gac Asp	ccg Pro	gag Glu	act Thr	tgg Trp	ata Ile	gtt Val	tgt Cys	aat Asn	ttt Phe	tct Ser	1938

03-075-US

600	605	610	
gta gat cac agc agt gct cct cta aac aat cga tgt gtc cgt gcc aaa Val Asp His Ser Ser Ala Pro Leu Asn Asn Arg Cys Val Arg Ala Lys 615 620 625			1986
ata aac gtt gct atg att tgt cag acc ttg gtg agc ccc cca gag gga Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser Pro Pro Glu Gly 630 635 640			2034
aac cag gag att agc agg gac aac att cta tgc aag att aca tac gtg Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys Ile Thr Tyr Val 645 650 655 660			2082
gcc aat gta aac cct gga gga tgg gcc cca gcc tca gtg tta cgg gca Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser Val Leu Arg Ala 665 670 675			2130
gtg gca aag cga gaa tat cca aag ttt cta aag cgt ttt act tct tac Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg Phe Thr Ser Tyr 680 685 690			2178
gta caa gaa aaa act gca gga aaa cct att ttg ttc tag tattaacagt Val Gln Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe 695 700			2227
gactgaagca aggctgtgtg acattccatg ttggaggaaa aaaaaaaaaa aaaaaa			2283

<210> 100
 <211> 704
 <212> PRT
 <213> Bos taurus

<400> 100

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Gly Val Thr Thr Thr Ala Thr Ala Asp Gly Trp Lys Gly Arg Leu Pro 20 25 30
Ser Pro Leu Asp Leu Leu Pro Arg Ser Ala Trp Cys Gln Ala Arg Arg 35 40 45
Arg Arg Arg Arg Arg Arg Gly Gly Arg Thr Pro Ser Leu Leu Pro Leu 50 55 60
Pro Pro Ala Pro Glu Arg Ala Leu Leu Pro Ser Pro Ser Pro Asp Pro 65 70 75 80
Ser Pro Arg Gly Leu Gly Ala Ser Thr Gly Ala Ala Gln Gly Ala Gly 85 90 95
Ala Gly Leu Leu Leu Gly Cys Arg Ala Ser Met Ser Asp Asn Gln Ser 100 105 110

03-075-US

Trp Asn Ser₁₁₅ Ser Gly Ser Glu Glu₁₂₀ Asp Pro Glu Thr Glu₁₂₅ Ser Gly Pro
Pro Val₁₃₀ Glu Arg Cys Gly Val₁₃₅ Leu Ser Lys Trp Thr₁₄₀ Asn Tyr Ile His
Gly₁₄₅ Trp Gln Asp Arg Trp₁₅₀ Val Val Leu Lys Asn₁₅₅ Asn Thr Leu Ser Tyr₁₆₀
Tyr Lys Ser Glu Asp₁₆₅ Glu Thr Glu Tyr Gly₁₇₀ Cys Arg Gly Ser Ile₁₇₅ Cys
Leu Ser Lys Ala₁₈₀ Val Ile Thr Pro His₁₈₅ Asp Phe Asp Glu Cys₁₉₀ Arg Phe
Asp Ile Ser₁₉₅ Val Asn Asp Ser Val₂₀₀ Trp Tyr Leu Arg Ala₂₀₅ Gln Asp Pro
Asp His₂₁₀ Arg Gln Gln Trp Ile₂₁₅ Asp Ala Ile Glu Gln₂₂₀ His Lys Thr Glu
Ser Gly Tyr Gly Ser Glu₂₃₀ Ser Ser Leu Arg Arg₂₃₅ His Gly Ser Met Val₂₄₀
Ser Leu Val Ser Gly₂₄₅ Ala Ser Gly Tyr Ser₂₅₀ Ala Thr Ser Thr Ser₂₅₅ Ser
Phe Lys Lys Gly₂₆₀ His Ser Leu Arg Glu₂₆₅ Lys Leu Ala Glu Met₂₇₀ Glu Thr
Phe Arg Asp₂₇₅ Ile Leu Cys Arg Gln₂₈₀ Val Asp Thr Leu Gln₂₈₅ Lys Phe Phe
Asp Ala₂₉₀ Cys Ala Asp Ala Val₂₉₅ Ser Lys Asp Glu Phe₃₀₀ Gln Arg Asp Lys
Val Val Glu Asp Asp Glu₃₁₀ Asp Asp Phe Pro Thr₃₁₅ Thr Arg Ser Asp Gly₃₂₀
Asp Phe Leu His Asn₃₂₅ Thr Asn Gly Asn Lys₃₃₀ Glu Lys Val Phe Pro₃₃₅ His
Val Thr Pro Lys₃₄₀ Gly Ile Asn Gly Ile₃₄₅ Asp Phe Lys Gly Glu₃₅₀ Ala Ile
Thr Phe Lys₃₅₅ Ala Thr Thr Ala Gly₃₆₀ Ile Leu Ala Thr Leu₃₆₅ Ser His Cys

03-075-US

Ile Glu Leu Met Val Lys Arg Glu Asp Ser Trp Gln Lys Arg Met Asp
370 375 380

Lys Glu Thr Glu Lys Arg Arg Arg Val Glu Glu Ala Tyr Lys Asn Ala
385 390 395 400

Met Thr Glu Leu Lys Lys Lys Ser His Phe Gly Gly Pro Asp Tyr Glu
405 410 415

Glu Gly Pro Asn Ser Leu Ile Asn Glu Glu Glu Phe Phe Asp Ala Val
420 425 430

Glu Ala Ala Leu Asp Arg Gln Asp Lys Ile Glu Glu Gln Ser Gln Ser
435 440 445

Glu Lys Val Arg Leu His Trp Ser Thr Ser Met Pro Ser Gly Asp Ala
450 455 460

Phe Ser Ser Val Gly Thr His Arg Phe Val Gln Lys Val Glu Glu Met
465 470 475 480

Val Gln Asn His Met Thr Tyr Ser Leu Gln Asp Val Gly Gly Asp Ala
485 490 495

Asn Trp Gln Leu Val Val Glu Glu Gly Glu Met Lys Val Tyr Arg Arg
500 505 510

Glu Val Glu Glu Asn Gly Ile Val Leu Asp Pro Leu Lys Ala Thr His
515 520 525

Ala Val Lys Gly Val Thr Gly His Glu Val Cys Asn Tyr Phe Trp Asn
530 535 540

Val Asp Val Arg Asn Asp Trp Glu Thr Thr Ile Glu Asn Phe His Val
545 550 555 560

Val Glu Thr Leu Ala Asp Asn Ala Ile Ile Ile Tyr Gln Thr His Lys
565 570 575

Arg Val Trp Pro Ala Ser Gln Arg Asp Val Leu Tyr Leu Ser Ala Ile
580 585 590

Arg Lys Ile Pro Ala Leu Asn Glu Asn Asp Pro Glu Thr Trp Ile Val
595 600 605

Cys Asn Phe Ser Val Asp His Ser Ser Ala Pro Leu Asn Asn Arg Cys

03-075-US
620

610

615

Val Arg Ala Lys Ile Asn Val Ala Met Ile Cys Gln Thr Leu Val Ser
625 630 635 640

Pro Pro Glu Gly Asn Gln Glu Ile Ser Arg Asp Asn Ile Leu Cys Lys
645 650 655

Ile Thr Tyr Val Ala Asn Val Asn Pro Gly Gly Trp Ala Pro Ala Ser
660 665 670

Val Leu Arg Ala Val Ala Lys Arg Glu Tyr Pro Lys Phe Leu Lys Arg
675 680 685

Phe Thr Ser Tyr Val Gln Glu Lys Thr Ala Gly Lys Pro Ile Leu Phe
690 695 700

<210> 101
<211> 13
<212> PRT
<213> Mus musculus

<400> 101

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<211> 171
<212> PRT
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<223> Derived sequence

<400> 102

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Ala Thr Ala Ser Thr Met Asp His Ala Arg His Gly Phe Leu Pro Arg
20 25 30

His Arg Asp Thr Gly Ile Leu Asp Ser Ile Gly Arg Phe Phe Gly Gly
35 40 45

Asp Arg Gly Ala Pro Lys Arg Gly Ser Gly Lys Asp Ser His His Pro
50 55 60

Ala Arg Thr Ala His Tyr Gly Ser Leu Pro Gln Lys Ser His Gly Arg
65 70 75 80

03-075-US

Thr Gln Asp Glu Asn Pro Val Val His Phe Phe Lys Asn Ile Val Thr
85 90 95

Pro Arg Thr Pro Pro Pro Ser Gln Gly Lys Gly Arg Gly Leu Ser Leu
100 105 110

Ser Arg Phe Ser Trp Gly Ala Glu Gly Gln Arg Pro Gly Phe Gly Tyr
115 120 125

Gly Gly Arg Ala Ser Asp Tyr Lys Ser Ala His Lys Gly Phe Lys Gly
130 135 140

Val Asp Ala Gln Gly Thr Leu Ser Lys Ile Phe Lys Leu Gly Gly Arg
145 150 155 160

Asp Ser Arg Ser Gly Ser Pro Met Ala Arg Arg
165 170

<210> 103
<211> 18
<212> PRT
<213> artificial

<220>
<223> Derived sequence

<400> 103

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1 5 10 15

Ser Ser